



Our Precision, Your Advantage

Environmental and Social Report

2012

A society of smiles through manufacturing



About KYB

Company Overview

Company Name : KYB Corporation
(official corporate name: Kayaba Industry Co., Ltd.)

Founded : Kayaba Research Center, November 19, 1919

Established : Kayaba Manufacturing Co., Ltd. March 10, 1935

Incorporated : November 25, 1948

Head Office : World Trade Center Bldg., 2-4-1, Hamamatsu-cho, Minato-ku, Tokyo 105-6111, Japan

Chief Representative : Representative Director, President Masao Usui

Capital : ¥19,113,680,000 (As of March 31, 2012)

Plants : Sagami, Kumagaya, Gifu North, Gifu South

Laboratories : Basic Technology R&D Center, Production Technology R&D Center

Major Products

AC operations

Shock absorbers, suspension systems, power steering systems, vane pumps, front forks, oil-cushion units, stay dampers, free locks

HC operations

Cylinders, valves, oil dampers for railroad, collision bumpers, pumps, motors, aircraft landing systems, aircraft pilot systems, aircraft control systems, aircraft emergency systems

Others (Special-purpose vehicles and other products)

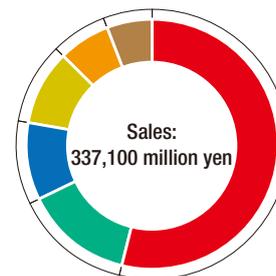
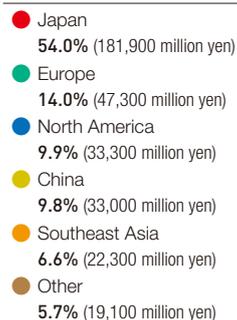
Concrete mixer trucks, granule carriers, special-purpose vehicles, simulators, hydraulic systems, stage mechanisms, marine equipment, tunnel boring machines, environmental devices, earthquake-resistant and vibration insulation dampers, electronic control systems

Affiliated Company Production Bases

Region	Affiliated Companies
Japan	Kayaba System Machinery Co., Ltd. KYB Kanayama Co., Ltd. KYB-YS Co., Ltd. KYB Cadac Co., Ltd. KYB Trondule Co., Ltd. TAKAKO Industries, Inc.
Overseas	KYB Manufacturing Czech, s.r.o. KYB Suspensions Europe, S.A. KYB Steering Spain, S.A. KYB Advanced Manufacturing Spain S.A. KYB Industrial Machinery (Zhenjiang) Ltd. KYB Hydraulics Industry (Zhenjiang) Ltd. Wuxi KYB Top Absorber Co., Ltd. Changzhou KYB Leadrun Vibration Reduction Technology Co., Ltd. KYB Manufacturing Taiwan Co., Ltd. KYB (Thailand) Co., Ltd. KYB Steering (Thailand) Co., Ltd. KYB Manufacturing Vietnam Co., Ltd. TAKAKO VIETNAM Co., Ltd. KYB-UMW Malaysia Sdn.Bhd. KYB-UMW Steering Malaysia Sdn.Bhd. P.T Kayaba Indonesia KYB Americas Corporation TSW Products Co., Inc. KYB do Brasil Fabricante de Autopeças Ltda

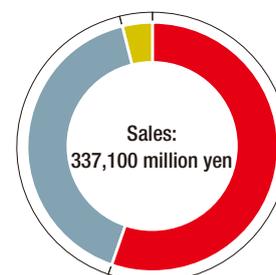
Sales by Region (Fiscal 2011) [Consolidated]

Sales: 337,100 million yen

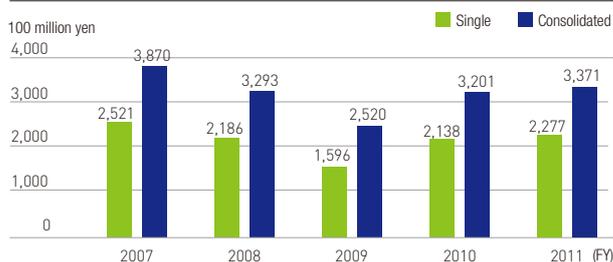


Sales by Segment (Fiscal 2011) [Consolidated]

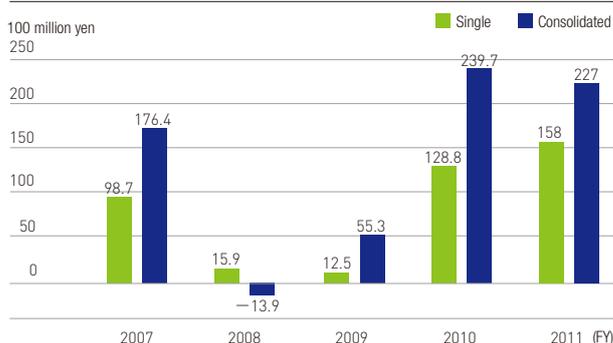
Sales: 337,100 million yen



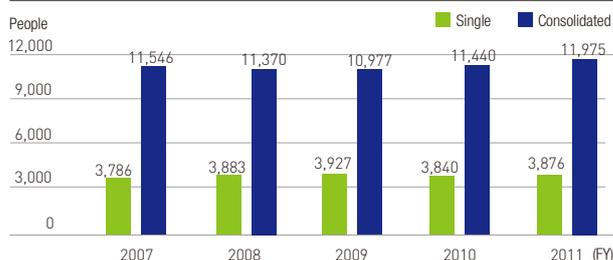
Shift in Sales



Shift in Working Profit



Shift in Employees





□ Contents

About KYB ----- 02
 Top Message ----- 04
 Aims of the KYB Group ----- 06

Feature

Feature 1

2011 Action Highlights----- 08

Introduction to KYB's New Technology

Electro-Hydraulic Energy Saving System "EHES"

Feature 2

Improvement of Technological Capabilities, Human Asset to Support Monozukuri Company ----- 09

Environmental Report

Environmental Management

KYB Group Environmental Policies ----- 11

Initiatives to Reduce Environmental Burden

Preventing Global Warming ----- 12

Environmental Initiatives at the Logistics Stage ----- 13

Initiatives to Reduce Waste ----- 15

Environmentally Friendly Products ----- 16

Social Report

For Our Customers

Quality Policy ----- 17

Towards Improved Customer Satisfaction ----- 18

For Our Employees

Improvement of Employee Communication and Technological Capability ----- 19

Globally Expanding KYB Group ----- 20

Utilizing the power of the KYB Group to contribute to environmental preservation and the development of society



Masao Usui
KYB Corporation
Representative Director, President

Masao Usui

The 2012 edition of the KYB Environmental and Social Report presents a brief report on the contributions the KYB Group has made to global environmental preservation and society, as well as an outline of the role and initiatives the KYB Group needs to adopt in order to help achieve a sustainable society in the future.

Initiatives achieved in fiscal 2011 with regard to our contributions to environmental preservation and society

In 2011, the KYB Group contributed to society by donating products to assist recovery efforts in the aftermath of the Great East Japan Earthquake and also developed energy-saving products in order to contribute to environmental preservation.

Consolidated sales for the KYB Group in fiscal 2011 reached 337.1 billion yen, which exceeded the 329 billion yen target set at the beginning of the period despite such setbacks as the Great East Japan Earthquake, slackening demand for construction machinery in China, the floods in Thailand and the effects of an appreciating yen. Business profits reached 22.8 billion yen, which exceeded our target of 17 billion yen.

With regard to energy-saving products that take the global environment into consideration, the KYB Group marketed the Electro-Hydraulic Energy Saving System (EHES), which is mounted on hydraulic excavators, and is forging ahead with our “LT50 activities,” which aim to halve the lead time required from procurement through delivery of the end product to customers.

We have soothed the anxieties of many customers by supplying them with quake isolation systems and quake dampers that are effective in minimizing shaking in various types of buildings during earthquakes, of which Japan experiences many. Quake isolation systems and quake dampers conventionally operate using mineral oil, but we have now marketed rotation inertia mass dampers that do not use oil, yet improve functionality and are environmentally friendly. Rotation inertia mass dampers efficiently convert structural sway into rotary energy and provide buildings with high levels of damping force, and this means that the number of dampers installed can be reduced to one-third that of conventional systems, also reducing the cost of quake-proofing buildings. Quake isolation systems and quake dampers are used in many high-rise structures, including the Tokyo Sky Tree, and KYB Group technology is playing an active role in protecting Tokyo Station, a historical building that recently went through a retrofit (restoration and quake-proofing work.)

Note: See the special feature on page 8 for further details on the Electro-Hydraulic Energy Saving System.

■ Conditions facing the KYB Group in fiscal 2012

Although the world's automotive markets are currently expanding, Japan's automotive market is shifting overseas and price competitiveness is growing more and more aggressive. Price wars between hydraulic equipment manufacturers serving China's market for construction machinery are also heating up. On the other hand, there has been a rapid increase in demand for ultra-large heavy machinery used for mining, and we are currently busy reorganizing our production systems in order to cater to this.

The global markets for automobiles and construction machinery are expected to expand in fiscal 2012 owing to demand created by recovery work in the area hit by the Great East Japan Earthquake, the return to normal from the effects of the floods in Thailand, and the economic recovery of China's markets. The KYB Group is currently forging ahead to create a system for acquiring revenue for automobile parts from overseas and to establish a production system that is fully able of catering to the requirements of our customers with regard to construction machinery parts. In addition to this, we have established initiatives to manufacture products within the KYB Group and improve efficiency for on-site procurement to enable us to provide services at prices that cannot be beaten anywhere else in the world.

Demand for energy-saving products is also heightening owing to the current situation in which restarting nuclear power plants within Japan is facing stiff opposition. In addition to developing energy-saving products, the KYB Group is also actively pursuing energy-saving activities with regards to our own business activities.

■ Attaining the targets of our mid-term plan

We are proceeding with "human assets" training and reducing the number of work-related accidents in order to create a system in which we are able to obtain revenue worldwide and strengthen our electronics technology, and movement towards reaching the goals laid down in our mid-term plan is picking up speed.

We have drastically increased the number of engineers and are reinforcing our global organization to respond to increased production and strengthen our technology base.

However, simply increasing the number of workers does not mean that we will be able to reach our mid-term plan targets, and personnel training is now more important than ever. At KYB, we believe that "human resources" should be regarded as "human assets," and we place a great deal of emphasis on training these human assets. We have established

an overseas training program as part of the KYB Group's language training program, and have set up a system that includes a short-term overseas study program lasting up to six months and a training program that lasts two years.

We also conduct programs in which members of global branches can meet under the same roof to study and exchange information, and in this way we give great importance to training the human assets that will support a *Monozukuri* (Japanese manufacturing expertise) company in the future. We also work hard at ensuring that our work environments are employee-friendly, through such actions as giving consideration to maintaining a favorable work/life balance, supporting the active employment of female workers, the re-employment of elderly people and the employment of handicapped people and overseas workers, and establishing a variety of systems for providing time off for child-rearing, nursing and volunteer activities, etc. See the articles on page 10 for further details.

On the other hand, the KYB Group was also faced with a worrying situation in fiscal 2011, in which the number of labor-related accidents at our branches throughout the world increased. Fully realizing the seriousness of this problem, we will give priority to all aspects of safety in fiscal 2012 by evaluating all risks as swiftly as possible and eradicating all hazardous areas.

■ The role that KYB will play in fiscal 2012

In addition to manufacturing user-friendly and environmentally friendly products as a company supplying strength and comfort, the KYB Group will also place priority on establishing markers that enable us to evaluate the administration of our activities for contributing to environmental preservation and society.

While forging ahead with our business mission, we have also formulated environmental policies for the entire KYB group in order to adopt initiatives that reduce the burden on the environment, prevent global warming, control and reduce energy consumption and chemicals, and reduce the amount of industrial waste produced. We are also developing and distributing products that take the environment into consideration on a global scale. See the article on Globally Expanding KYB Group on page 20 for details on the activities being carried out in overseas branches.

I sincerely hope that this report has provided a clear understanding of the initiatives the KYB Group is adopting with regard to the environment and society, and I hope that all stakeholders will continue to provide us with their support. I also look forward to receiving not only your comments with regard to this report but also your frank opinions on the KYB group.

Our Precision, Your Advantage

The KYB Group aims to satisfy its stakeholders at a time of increasing focus on corporate social responsibility. Based on KYB's management philosophy, each employee will maintain an awareness of our responsibility as a business, and manifest that awareness through actions that will always comply with the law. We will moreover work to enhance our corporate value so that our company continues to be a trusted.



Corporate Philosophy

By providing technologies and products that make people's lives safe and comfortable, the KYB Group contributes to society.

1. We will build a corporate culture full of vitality and challenge higher goals.
2. We will value sincerity, cherish nature, and care for the environment.
3. We will constantly pursue creativity, and contribute to the prosperity of customers, shareholders, suppliers and society.

Management Vision

1. Human Asset Development

We will develop human assets with a thorough understanding of our policies and strategies who can accomplish our goals with passion.

2. Technology and Product Development

We will provide products that impress our customers around the world, and that provide them with a sense of safety and satisfaction.

3. Monozukuri (Japanese manufacturing expertise)

We will operate plants filled with the creative inspiration of committed *Monozukuri*, and will the energy and joy of creating products that satisfy our customers.

4. Management

We will always be aware of our corporate social responsibilities and pursue efficient group management.

Action Guidelines

- | | | |
|---|--|--|
| (1) Establish and practice corporate ethics | (10) Take part in initiatives by industry groups and other organizations | (18) Protect the natural environment |
| (2) Always put the customer first | (11) Have nothing to do with antisocial forces | (19) Practice labor-management cooperation |
| (3) Pursue product safety | (12) Prohibit insider trading | (20) Ensure safety and health |
| (4) Practice proper accounting | (13) Protect intellectual property rights | (21) Provide training and develop talent |
| (5) Disclose information | (14) Protect trade secrets | (22) Prohibit discrimination |
| (6) Comply with the law | (15) Protect personal information | (23) Prohibit harassment |
| (7) Practice fair trade with customers | (16) Protect other business assets | (24) Prohibit child labor and forced labor |
| (8) Practice fair trade with suppliers | (17) Coexist well with local communities | (25) Maintain and improve a good workplace environment |
| (9) Deal promptly with complaints | | |

■ What KYB Aims to Be

Society
Contribute to the community
 Coexistence with suppliers and local communities

Global environment
Coexist with the global environment
 Environmental management, environmental and social report, energy conservation

Employees
Achieve a healthy workplace environment
 Human rights, worker safety and health, human asset development

KYB Group

VALUE
 Technology for comfortable living

VISION
 Monozukuri for human happiness

MISSION
 Monozukuri taken one step further

By providing technologies and products that make people's lives safe and comfortable, the KYB Group contributes to society

Social Responsibility in the KYB Group

Through our business activities, the KYB Group aims to contribute to the development of our customers, shareholders, suppliers and society through the constant pursuit of creativity.

Following our Corporate management philosophy and vision, units of the KYB Group incorporate CSR initiatives into their yearly action plans and put them into practice. They then follow up on these actions as part of an ongoing cycle of improvement and reform.

Employees carry the KYB Group's Action Guidelines with them to deepen their awareness of the importance of CSR.

VISION

What the KYB brand can do for the world
Monozukuri for human happiness

KYB's aim is to support the development of society through the joy of *Monozukuri*, and make people happier as a result.

VALUE

Value made possible by the KYB brand
Technology for comfortable living

Sensory value: comfortable living, the joy of *Monozukuri*
 Functional value: reliable quality
 The value KYB promises its end users is a higher level of comfortable living that comes from creative technology and sincere product development.
 The value KYB promises its clients is the reliable quality that comes from thinking of the end user as our client.
 The value KYB promises each employee is the joy of *Monozukuri* that comes from knowing he or she is changing the world.

MISSION

The mission of the KYB brand
Monozukuri taken one step further

KYB will remain an enterprise able to bring value to our clients and markets thanks to the reliable technical expertise we have built up over the years.
 Through our own efforts, we take *Monozukuri* one step further to provide our clients with new value and greater satisfaction than they have ever known.

Introduction to KYB's New Technology

Electro-Hydraulic Energy Saving System "EHES"

KYB is developing a one-of-a-kind hybrid system for construction machinery.

KYB's electro-hydraulic energy saving system (EHES) is a hybrid system made possible only by hydraulics specialists. It supplies direct assistance by making effective use of oil that can be converted to energy during the operation of hydraulic power excavators. It can also be installed on existing mother machines without compromising operability, and the basic hydraulic functions of the mother machine can be maintained even if the system is down.

KYB will continue to provide energy-saving systems that can work together with and be applied to original systems produced by mother machine manufacturers.



Superior usefulness of the EHES

High Energy Efficiency

- Direct re-use of hydraulic energy from oil return
- Surplus energy is converted into electrical energy and stored
- Even when there is no oil return, assistance can be provided by operating the electric drive assist pump using stored energy

Advanced Flexibility

Excellent robustness

- (1) Conventional hydraulic circuits can be used
- (2) Even if the assist system is down, basic hydraulic function and operation of the mother machine are maintained

High applicability

- (1) Can be installed without compromising the operability of existing mother machines
- (2) Responds to all systems, including negative control, positive control, and LS

High Energy Saving Function

- Reduces fuel consumption and CO₂

Reduces fuel consumption

Note: Based on in-house surveys; When compared to a 20-ton class excavator in standard operating mode

During full assist
(Assist time depending on hydraulics and battery)

Decrease of over

30%

During continuous operation
(Including recovery charge of the used battery portion)

Decrease of over

10%

Note: The CG and schematic illustrations are provided to explain the mechanism, and differ from the actual arrangement.

Lead time decreased by 50%. “LT50 activity” linked to the future of KYB, the *Monozukuri* company

“LT50 activity” is an important pillar in our current mid-term management plan, and will cut manufacturing lead time by 50%. This action will allow us to reduce lead time by 50%, and then again by 50%, and again by 50%, and can be implemented in perpetuity. By cutting lead time, we can solve a number of problems, including machine failure and poor quality, and as a result, will be able to improve Q (quality), C (cost), D (delivery), S (safety), M (morals), and E (environment), which are all ultimately linked to profit.

Tackling a reduction in lead time in plants

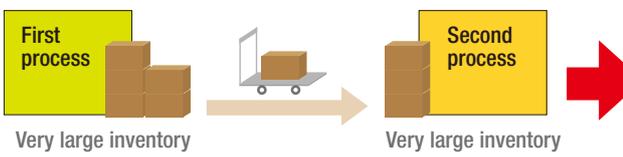
At our existing plants, we first begin by fixing the manufacturing basics (how *Monozukuri* should be done. A typical example: Line machines in process sequence, place parts by number, etc.). By eliminating unreasonable, inconsistent and unnecessary activities, revising rules and implementing them, we make it easier for our employees to perform their work. A “try to improve to make things easier” mentality emerges, and through these activities, we strive for human asset development. Omitting unreasonable, inconsistent and unnecessary activities is also people-friendly and eco-friendly.

We are trying to incorporate manufacturing basics from the planning stage and striving to eliminate unreasonable, inconsistent and unnecessary activities at our new plants, which are beginning to open globally.

Improvement Case 1: From “collective manufacturing” to “one-by-one manufacturing”

-Before improvement-

All parts produced in the first manufacturing process were transported at the same time, so there was a large amount of inventory between manufacturing phases.



Very large inventory

-After improvement-

Inventory was reduced by connecting each process to one line. Work stations were made independent so that production could be handled individually.



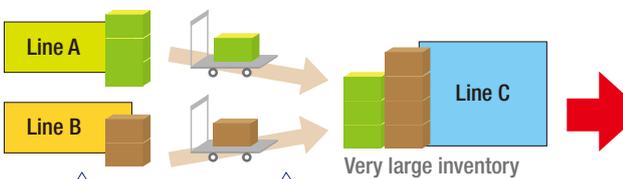
80% reduction in in-process inventory
30% reduction in completion time
50% reduction in space

Work stations

Improvement Case 2: From “Manufacturing based on line availability” to “Checking inventory and manufacturing only what is needed”

-Before improvement-

Parts produced on Lines A and B were continually transported to Line C. The large inventory of parts on Line C was invisible from Lines A and B, leading to worry about low stock levels, and even more parts were produced.



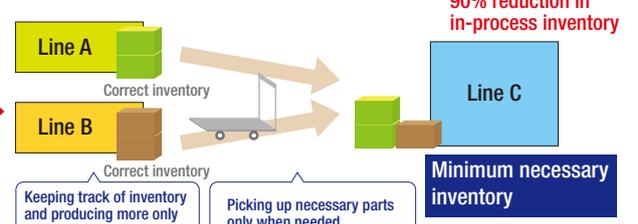
Very large inventory

Worry about insufficient stock leads to greater production

Continually transported after production

-After improvement-

Parts produced by Lines A and B are stored next to those lines. Line C picks up parts only as they are needed. Lines A and B can see the parts and produce only those for which inventory is low.



90% reduction in in-process inventory

Minimum necessary inventory

Correct inventory

Keeping track of inventory and producing more only when needed

Picking up necessary parts only when needed

INSIDE A “Try anyway” attitude is important

We adopted the “LT50 activity” when we looked at equipment layout and storage of finished products, and we ourselves took the initiative in creating a system and the tools required to produce only the amounts we need of the parts we need. Our goal was to reduce in-process inventory to 0.25 months worth, but we actually reduced it to 0.17 months worth. As improvements were made, we could feel the awareness of the workers changing as the importance of a “try anyway” attitude was demonstrated through this action.

Sagami Plant PPM Small Size Manufacturing Sect. **Yasuhiko Sasaki**



“Global Human Asset Development”: Production anywhere in the world with no difference in quality

KYB products are manufactured and distributed to customers all over the world. Differences in quality and productivity in different locations will lead to a loss of trust in the KYB Group as a whole.

To maintain the same level of quality regardless of where the product is manufactured, we implement “global engineer training”, with the aim of improving our manufacturing techniques. The slogan of the KYB Group is “to become a global enterprise trusted by customers all over the world”.

Note: Based on the idea that “it is the people who build the organization, and who are assets to the organization”, at KYB we prefer to call human resources “human assets”.

Global engineer training

“Global engineer training” consists of group training sessions implemented since 2006, supported by three pillars: 1. The self-reliance of overseas production bases through awareness reform at our actual *Monozukuri* sites; 2. Maintenance of steady quality worldwide by sharing KYB’s own technology; and 3. Visiting actual sites and using actual products to offer interactive lectures, intensive practice, and tours of advanced plants, with the aim of developing a global KYB Group awareness.

To tackle rapid globalization, we have urgently needed to strengthen on-site support and overall improvement of techniques and expertise at our overseas production bases. Global engineer training has been a shared effort throughout the entire Group. Trainees acquire basic techniques, and the confidence this training gives them allows them to develop further on their own. This training also increases the motivation of workers.

In 2011, we provided 4 training courses for 39 participants from 12 overseas bases, bringing the total number of trainees to 192. We will continue to promote this effort to increase technical capability within the entire KYB Group, and to improve the quality of KYB products.

INSIDE I participated in global engineer training (plating course)

Global engineer training uses full training materials, and lectures are based on a lot of knowledge and experience, so it was very educational. Exchanging information with other participants was also useful, and I realized the importance of learning about other plants in order to establish evaluation criteria.

At the end of training, we devised an improvement plan and were able to reduce the frequency of plating jig replacements. In addition, I received information on impurity removal equipment from other participants, and we are now looking into using it.

I hope to pass on what I learned at global engineer training to my colleagues at our plant.

P. T KAYABA INDONESIA
Agus Umaryanto





On-site training



Plant tour



Quality assessment



Lectures in 4 languages

New employee training

In order to guarantee that our employees have the ability to work anywhere in the world in support of our global growth strategy, we must foster global employees who will continue to improve in their specialties, who can work beyond borders and regions, and who can accomplish the tasks they are assigned.

As demonstrated by the saying “seeing is believing”, regardless of how advanced media becomes, seeing with our own eyes and experiencing for ourselves is the best way to learn and understand new cultures. In particular, cultural differences and differences in national conditions are difficult to grasp with knowledge and experience only in Japan. Therefore, to spur new employees to become true global human assets, they spent 2 nights and 3 days at a Chinese supervised company (KCI) in September 2011, and also visited KIMZ, KHIZ, and KMT. This allowed them to see and experience the activities of foreign workers and residents for themselves. Also, by visiting overseas bases, the employees were able to understand the merits of these bases, as well as get a new appreciation for the strengths of plants in Japan.

We will continue to provide training in order to foster global human assets.



KWT visit



A joint KIMZ/KHIZ presentation of improvement cases



KHIZ visit

Environmental Management

KYB Group Environmental Policies

In order to tackle environmental preservation activities as a whole, we have developed a basic environmental policy.

Slogan **Protect the Green Earth and Create Products Gentle to the Environment**

Basic Environmental Policies

The KYB Group creates products gentle to both people and the earth. As a company that provides power and comfort, we are dedicated to the promotion of environmental activities as an important tool for evaluating management.

1. Strive to ensure long-term and sustainable operations throughout the entire KYB Group.
2. Work to promote harmony with society and contribute to the global community as a good corporate citizen.
3. Clarify every employee's role so that all employees can participate fully

The KYB Group established a new mid-term plan in fiscal 2011. Based on this plan, we will implement environmental and safety activities based on our basic policy.

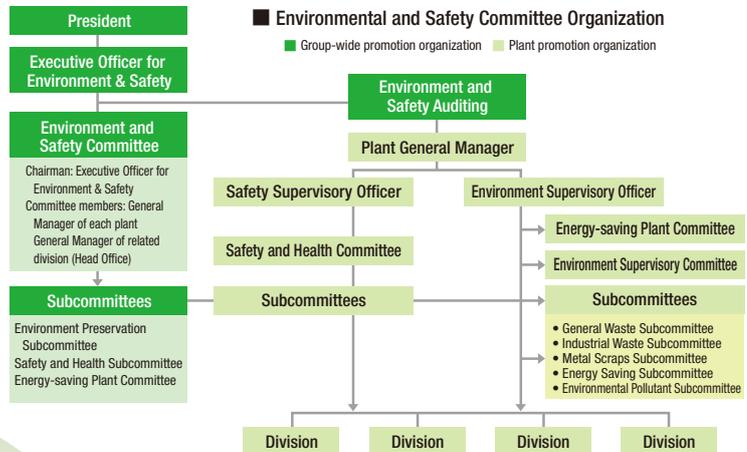
Environmental/Safety Mid-term Policy (2011 to 2013) (abstract below)

1. Creation of energy-saving plants:
Reduce CO₂ basic unit by 1% each year and reduce CO₂ emissions by 25% compared to 1990 by 2020
2. Creation of waste-free plants:
Reduce final disposal amount of industrial wastes by 65% compared to fiscal 2000 by 2015
3. Creation of accident-free plants:
Create a workplace that is safe, pleasant and accident-free



Environmental management organization

Environment and Safety Committee meetings are held twice a year, and environment and safety audits are held once a year to unify understanding of policies and activities related to the environment and the safety of each plant on a group-wide scale. Furthermore, we have been introducing various techniques so that employees can also save energy at home by changing the temperature setting of air-conditioners and using eco-operations through environmental education and implementation of environmental housekeeping books.



From Executive Officer for Environment & Safety

A Steady Push to Achieve the New Mid-term Environmental Plan

The KYB Group already has a record of implementing a number of initiatives to protect the environment, such as reducing emissions of greenhouse gases and other environmentally burdensome substances and developing products that help conserve energy.

In 2011, however, we were unable to achieve some of our quantitative environmental targets, in part because of the impact of the Great East Japan Earthquake on the implementation and operation of independent power generation facilities.

In light of this, we are taking diverse strategic actions, such as operating some facilities at night to stay within peak power limits.

We have also established quantitative environmental targets for production bases outside Japan, where we are monitoring greenhouse gas emissions and taking initiatives to reduce them.

In terms of safety, we aim to complete seismic durability measures at all plants by 2013. We are reinforcing buildings systematically and improving risk assessments so that employees' families will feel comfortable sending their loved ones off to work.

Finally, let me thank you for your interest in this report. I welcome your input on how we can improve in the future.



Managing Executive Officer
Kazuhiro Ogata

Initiatives to Reduce Environmental Burden

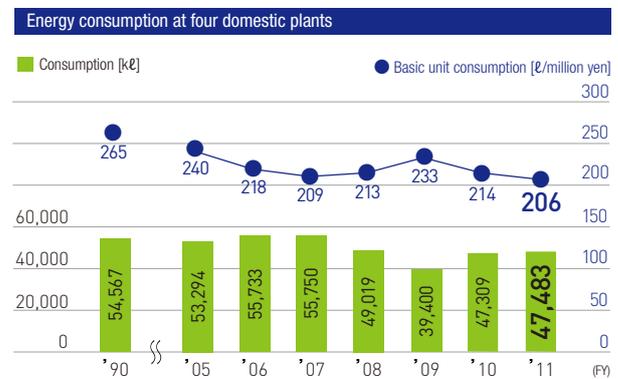
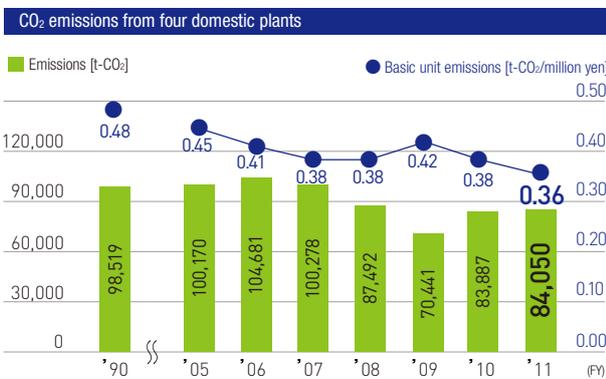
Preventing Global Warming

As a production center for a business combining hydraulic technologies to provide society with comfort and strength, the KYB Group works to protect the environment by developing and manufacturing products that are eco-friendly and people-friendly. We also work to coexist harmoniously with the local and international community and maintain a better natural environment.

Goals for reducing CO₂ emissions and energy use

Reduction of both basic units of CO₂ emissions and total energy usage by 2% compared to fiscal 2010 by the end of fiscal 2012

In fiscal 2011, the KYB Group reduced CO₂ basic unit emissions by 5.3% from fiscal 2010, far surpassing our target of a 1% reduction. In fiscal 2012, we continue to pursue energy savings by cutting standby power consumption, changing fuels, and so on.



Note: Conversion factor used for calculating CO₂ emissions

- Source of CO₂ emissions conversion factor: Japan Automobile Manufacturers Association, Inc. Electric power: 0.3817 kg-CO₂/kWh; Kerosene oil: 2.5308 kg-CO₂/L; Diesel oil: 2.6468 kg-CO₂/L; Bunker A: 2.7000 kg-CO₂/L; LPG: 3.0094 kg-CO₂/L; City gas: 2.3576 kg-CO₂/m³
- Energy consumption: total electricity and fuel converted to crude oil. Basic units are calculated based on the shipment volume of production. (Basic unit = energy consumption ÷ production/shipment volume)

TOPICS

Praised for Strong Eco-Awareness and Initiatives

TAKAKO VIETNAM Co., Ltd. (TVC) won a Green Company Award from the People's Committee of Binh Duong Province in 2011. The award honors businesses engaged in eco-friendly manufacturing practices. TVC was one of the first businesses in the area to separate waste and treat wastewater, and it continues to tackle environmental problems with strong awareness. The employee cafeteria at its No. 1 plant has won praise from workers for offering them a comfortable space surrounded by greenery.

TVC manufactures and assembles precision parts for hydraulic equipment. Takako Industries has plants in Shiga Prefecture (Japan), Vietnam and the U.S., with two Vietnamese plants in Binh Duong Province, near Ho Chi Minh City. With 2,000 businesses located here, this area is the economic hub of southern Vietnam. The local government, which has actively promoted area business, is working to develop a town that ensures industrial development while providing a good living environment for its citizens.



TVC Plant No. 1



Employee cafeteria at Plant No. 1



TVC President Nakamura with Green Company Award

Environmental Initiatives at the Logistics Stage

The KYB Group is working to improve transportation efficiency to reduce the CO₂ emissions at the shipping stage.

One focus has been to increase loading efficiency during shipments between plants by reconfiguring loads. We do “milk runs,” regular, multi-stop trips for small-scale suppliers, an exacting approach that has helped to cut CO₂ emissions. We will continue such CO₂ emissions reduction efforts.

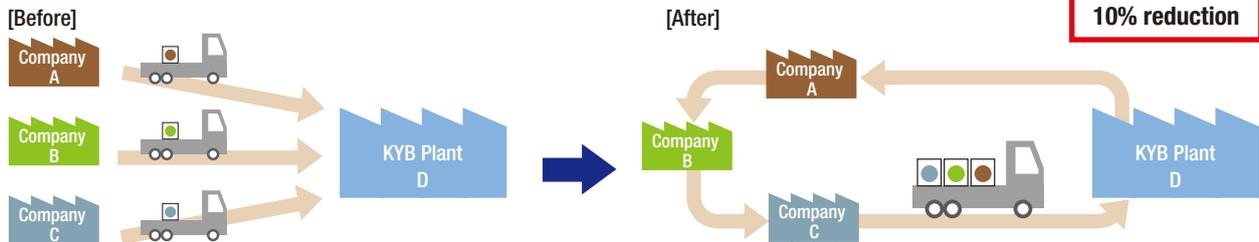
Improvement example 1: Increased loading efficiency during shipments between plants by reconfiguring loads

74% reduction



Improvement example 2: Increased shipping and loading efficiency by working cooperatively with suppliers on “milk runs”

10% reduction



TOPICS

Eco-Friendly Plants

KYB's eco-friendly plants are designed to protect the environment based on four concepts: 1) plants that have a high level of productivity without causing unreasonable, inconsistent and unnecessary movements of people and goods; 2) plants that are flexible enough to respond to changes in the business environment; 3) plants that customers trust and have confidence in (especially for quality and delivery); and 4) plants that are clean and green.

Example: Saving energy with a new cooling system (KSS)

KYB Steering Spain, S.A. (KSS) changed to a new cooling system for plant climate control in May 2011. A 15-year-old summer air conditioning system was replaced with new facilities that consume less energy.

KSS's first objective was to cut plant electricity consumption while maintaining the same level of cooling.



Energy consumption
290.448 kWh/year ⇒ 37.488 kWh/year
 • Energy: Reduced 252.960 kWh/year (87.1%)
 • CO₂: Reduced 43.003 kg-CO₂/year

Example: Beating the heat with water curtains (TVC)

All TAKAKO VIETNAM plants are located in tropical zones, where the mean annual air temperature is 30°C. Keeping the plant cool is essential for employee productivity, but the amount of electric power used annually had become a problem. TVC found a solution by installing cooling pad channels instead of using plant air conditioning.

[Before]
 Because of the plant's high ceiling, cooling was very inefficient and consumed too much power.

[After]
 Water is channeled through plant walls, creating a cooling airflow.



[Savings] Electric power usage reduced 90%

Initiatives to Reduce Environmental Burden

TOPICS

Energy Conservation Initiatives

KYB's Energy-saving Plant Committee works to decrease power consumption by reducing standby power use for production equipment and by improving construction methods.

Energy Saving Initiatives

Everyone in Japan has rallied to conserve energy since the March 2011 accidents at the Fukushima Daiichi Nuclear Power Station. Japan has risen to the challenge before, during the Oil Shocks of the 1970s, by developing efficient automobiles and electronics. The Japanese, moreover, have long had a sense of “*mottainai*,” an aversion to wastefulness based on an appreciation for limited resources.

KYB values this sense of “*mottainai*” and therefore our employees work to save energy during day-to-day production activities. We are conducting new experiments with IT, for example by finding ways to make electric power visible. We pursue energy saving initiatives in the belief that small efforts continued over time add up to large accomplishments.

Initiatives at Major KYB Plants in Japan

KYB plants have long been working to conserve energy by installing cogeneration systems that use exhaust heat efficiently and by switching to natural gas as a fuel that has lower CO₂ emissions. However, severe economic conditions since the Lehman Shock have forced us to freeze or interrupt steps requiring major capital investments.

We responded by launching the Energy-saving Plant Committee and starting up initiatives at each plant. Plant general managers work with other employees to implement such activities.

Fans create airflows that enhance the plant environment

Sagami Plant

Because of its low ceilings, the plant had many heat spots. A number of large fans were hung above corridors to carry away hot air.

The breeze blowing through the plant keeps it cool, so last summer we were able to do without one air conditioner.



A fan creates a breeze to keep air flowing through the plant. ▶

Slashing electricity costs using energy-saving equipment and new materials

Kumagaya Plant

The plant continues to save energy by turning off lighting and production equipment when not in use, regulating the temperature, switching to amorphous transformers for substations, and so on. Amorphous transformers greatly reduce energy consumption compared to traditional silicon steel transformers. Power loss under no-load conditions is reduced by 75%, and a single amorphous transformer can cut energy costs by 600,000 yen per year.



Substation amorphous transformer ▶

Reducing power waste by making power visible

Gifu South Plant

Since fiscal 2010, the plant has used a “power visualization system” developed by KYB to identify and analyze equipment with high standby power consumption and reduce energy waste. Going forward, it is partnering with the Energy-saving Plant Committee to effectively use and improve this system. Gifu South Plant will train personnel to make such improvements as it takes on further energy conservation initiatives.



Reducing power waste by making equipment power use visible ▶

Finding waste on each production line and saving energy plant-wide

Gifu North Plant

About 20% of energy use goes into operating compressors. It is difficult to fully eliminate air leaks when machinery is working, but the plant has found a way to easily measure and thus track how much air is lost on each production line. Air leaks can happen in various places, and it is difficult to always be conscious of trying to make improvements, but employees are doing all they can throughout the plant, being careful to shut off equipment when not in use.



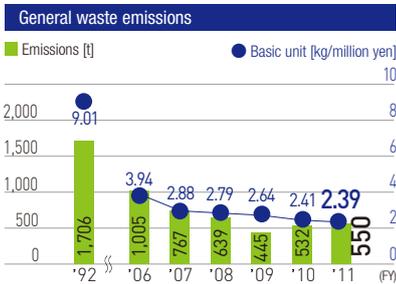
A simple air-leak volume gauge ▶

Initiatives to Reduce Waste

KYB practices resource savings (reduce, reuse, recycle) during product design, production, sale and logistics in order to cut waste. In our offices, we are increasing paperless meetings and greatly reducing paper waste. We are furthermore systematizing waste sorting and recovery to boost our recycling rate and bring us closer to zero emissions.

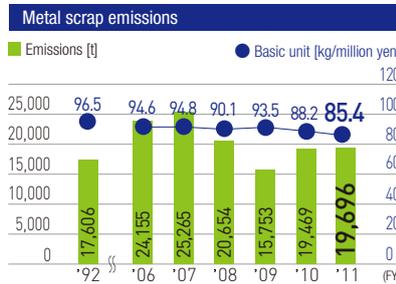
Reduction target for general waste

Reduction of emissions by 10% by the end of fiscal 2011 compared to fiscal 2000



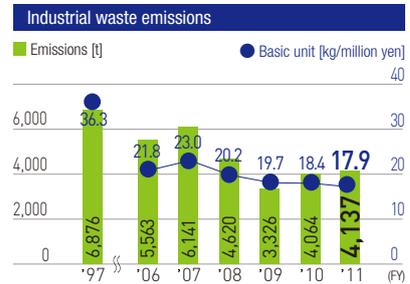
Reduction target for metal scraps

Reduction of emission by 1% by the end of fiscal 2011 compared to fiscal 2010



Reduction target for industrial waste

Reduction of emission by 30% by the end of fiscal 2011 compared to fiscal 2000



Initiatives to Reduce Industrial Waste

The KYB Group works together on initiatives to reduce industrial waste.

In the past, processing the large volume of oil-soaked rags generated during production created a major expense. We have worked to minimize waste by changing our use of oil-soaked rags. Whereas we previously used disposable rags, we now rent reusable ones, which reduces industrial waste and is better for the environment. This rental arrangement also ensures size uniformity and maintains a stable quality of the materials. It further greatly reduces waste-related expenses, so that we cut costs significantly on top of meeting environmental policy targets.



Initiatives for Reducing General Waste

At KYB, it is our goal to reduce general waste, and each plant comes up with its own ideas, which it shares with others to make improvements.

We performed a study to track general waste from our plants and determined that the disposal of stretch film, used to keep cargo together during shipping, is a great problem. Therefore we switched from disposable stretch film to special belts. Because these belts can be used repeatedly, there is no waste. Even safety is enhanced, since belt heights determine stacking height limits and make them more obvious.

Going forward, we are working to similarly reduce oiled paper, another item that generates a great deal of waste.



Effective use of scrap materials at KYB Group

KYB generates a great deal of metal scrap (198 tons in fiscal 2011) in our production activities. The Group has studied ways to use resources effectively, and in May 2011, KYB Cadac Co., Ltd., began using metal scrap as casting material. To ensure the quality of cast products, the company prepared special boxes for each type of metal scrap and keeps them in designated areas to prevent mixing. We estimate that in 2015, following a plant relocation plan, we will be effectively using twice as much scrap as we did in fiscal 2011.



Initiatives to Reduce Environmental Burden

Environmentally Friendly Products

Equipped with new fluid pressure technology to meet advanced requirements

Aqua Drive System (meat slicer)

The Aqua Drive System (ADS) is a new fluid control technology utilizing tap water as an operating fluid*. The system is very clean and environmentally friendly, while realizing the high output and controllability that are characteristic of fluid pressure. Application of this technology is highly anticipated as a fourth new drive system in addition to the existing three drive systems - hydraulic, pneumatic and electric. Application areas include food products, medicine and pharmaceuticals, cosmetics, chemical products, and semi-conductors.

*Operating fluid: A fluid that is a medium of transmission



• Aqua Drive System Meat Slicer
The monitoring machine was jointly developed with Watanabe Foodmach Co., Ltd. under the auspices of R&D operations at the Japan Meat Technology Institute, based on subsidies from the Agriculture & Livestock Industries Corporation.



Improving the safety and fuel efficiency of hydraulic excavators

Hydraulic excavator hose rupture valve

The hose rupture valve is one type of safety valve mounted on the cylinder of a hydraulic excavator. Should the hydraulic hose connected to the cylinder rupture, the valve shuts off oil passage and prevents a sudden drop in load, thereby protecting workers.

The hose rupture valve developed by KYB reflects user feedback and improves load retention and smooth operability when compared to conventional models, and does not allow load subsidence even when used on cranes with heavy loads. In addition, it reduces the valve's internal pressure loss, so it also contributes to the hydraulic excavator's fuel efficiency.

Recycling construction mud and soft soil

Dozeukun

The soil treatment truck "Dozeukun" includes equipment that can recycle construction mud and soft soil removed from construction sites, turning soil that would otherwise become industrial waste into recyclable dirt.

By mixing soil and treating substances in a paddle mixer, continuous processing is possible on site, and transportation costs and use of fossil fuels is reduced. In addition, the vehicle is extremely compact, requiring only 1/3 the power of a conventional soil treatment truck, thereby saving energy.

By using insolubilization treatments for contaminated soil, heavy metal pollutants can be insolubilized and outflow into peripheral areas can be prevented.



For Our Customers

Quality Policy

Management Philosophy and Policy Development

Based on our motto "Good quality is our company's life", at KYB, we incorporate our management philosophy into our action plans and policies for *Monozukuri* and service sites, and strive to contribute to the development of customers and society.

From Development to Mass Production

KYB promotes product and technology development using a 3-step evaluation process from the planning stages to the start of mass production in order to produce products with performance and quality that meet the needs of the market and our customers. In addition, we take very seriously our "Declaration of Quality and Safety", which is used to evaluate whether the products we develop meet performance and quality requirements, and whether we have constructed a process to safely and effectively produce these products.

Quality Assurance System

At KYB, we believe that improving product and service quality is very important and that to provide these, work process quality is equally important. All activities at KYB's global production bases are compliant with international quality management ISO or ISO/TS standards.

While information on markets and customers is shared in a timely manner between Sales Departments and other relevant departments, the Quality Control Department at our head office also collects information on problems and improvements from each production base to develop improvement activities across the whole company, leading to better quality and process improvement.

In cases of product defects, corrections are performed by the Quality Assurance Department, at the direction of plant general managers from each production plant. However, in an emergency, defect information is transmitted directly to KYB's president and top management through a hotline called "Instant Report". This structure allows us to provide accurate and global responses to problems, based on a top-down strategy.

Improvement and follow-up

At KYB, we work with our customers and business partners to stabilize management and reduce environmental burdens by eradicating product defects from the market and decreasing or eliminating production process problems globally. Inspection visits to all bases around the world by top management, from the KYB president down, are enforced in our annual plan.

Early morning meetings are held daily at all KYB bases, with a focus on quality and safety information exchange, improvements, and correction of defects. We also periodically and when necessary focus on training our employees, and are making an effort to prevent defects in quality and safety before they happen.

Regarding follow-up, the Quality Control Department at our head office promotes a monthly company-wide Quality Assurance Department conference (domestic). Additionally in our yearly global conferences, quality assurance is improved through information exchanges and discussions among all overseas base managers and heads of the Quality Assurance Departments.

Development of products and technology through a 3-step evaluation process and the Declaration of Quality and Safety

Step	Goal of the 3 steps	Quality assurance steps
Prior/Model development	Proof of possibility (*Description/evaluation of developed quality)	Development quality
Order development	Proof of mass production (*Actual proof/evaluation of developed quality)	Start quality
Mass production development/ Production preparations	Proof and serialization of applicability (*Actual proof/evaluation of start evaluation)	Mass production quality

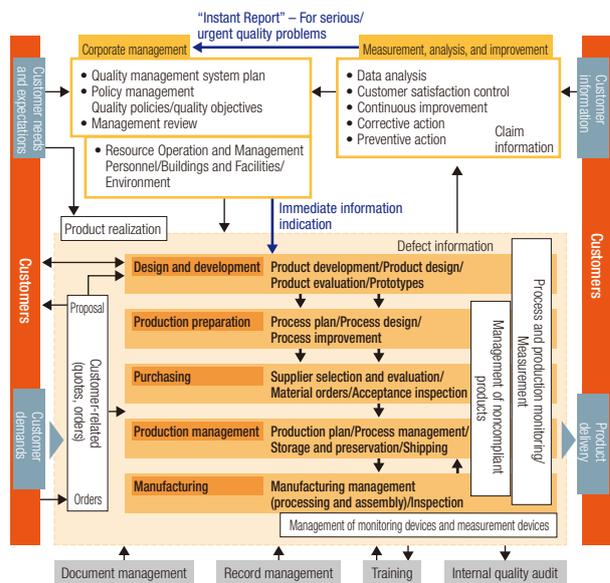
DR0 evaluation meeting
DR1 evaluation meeting
DR2 evaluation meeting
Mass production



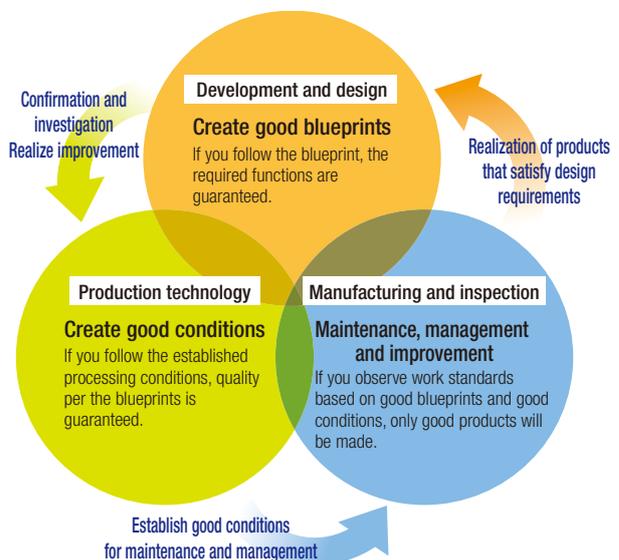
Declaration of Quality and Safety

Prior to the start of actual production, clarifying that quality is being implemented reliably in mass-produced products made by relevant processes and equipment

Quality management process and quality assurance system

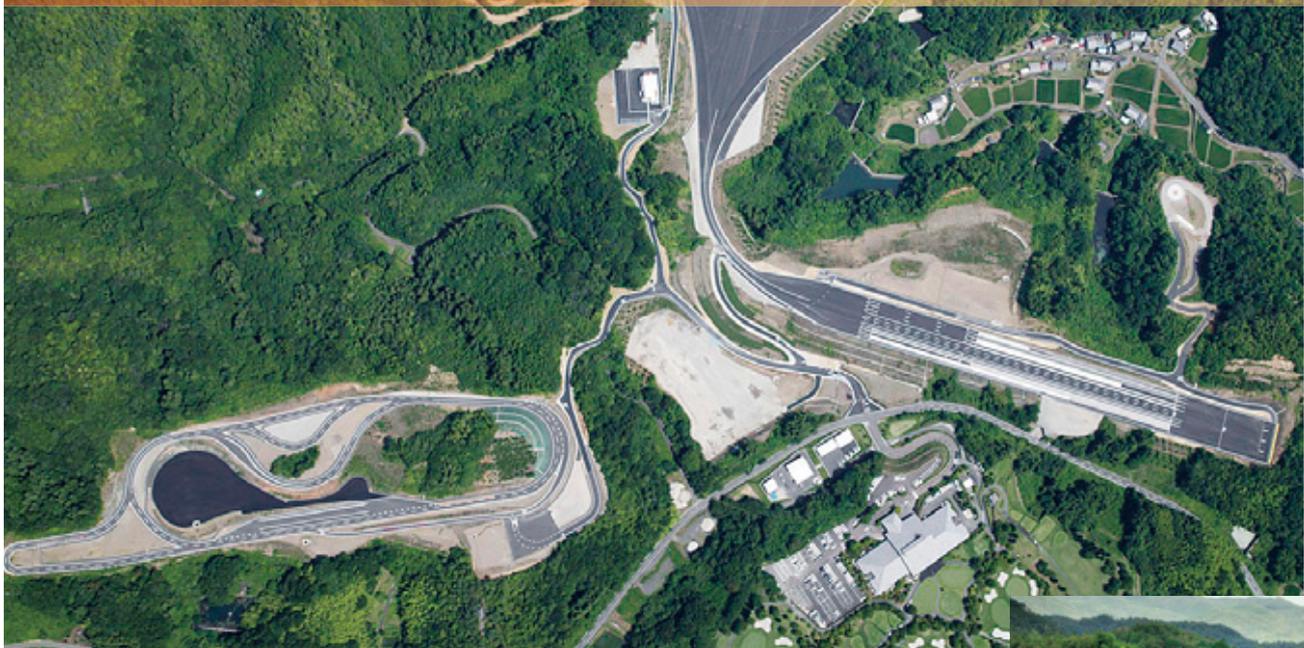


KYB's objective: Cycle of quality defect prevention



Towards Improved Customer Satisfaction

Establishment of the KYB Developmental Experiment Center (test course) – a system for responding to customers



► **Development and experimenting environment in which tests are carried out until everyone is satisfied**

At KYB, we develop and test automobile and motorcycle suspensions, steering and electronic devices, etc., until we are satisfied with their safety. To improve performance, trust, and product development capability, we have developed the KYB Developmental Experiment Center, our exclusive test course.

Before that, we used public institution test courses or carried out development and research in collaboration with customers, but due to problems with travel time, test course availability, and not being able to test products until we were satisfied, this was a major obstacle for product development and research.

Since our test course was completed, we are now able to develop and experiment the products as much as we need, when we need. In addition, establishment of the environment where we can test our products and investigate problems has led to increased motivation and willingness in development and technology staff.

By carrying out actual driving tests until we are satisfied, we can develop and provide better products earlier than other companies. We can also have customers test products that anticipate users' needs at this test course, and therefore be a supplier that can make proposals to customers. This is the objective of the Developmental Experiment Center.



■ **Consideration for biodiversity**

Construction of the KYB Developmental Experiment Center, located in a mountainous area rich in nature in Kawabe Town and Minokamo City in Gifu prefecture, began in July 2008, and the opening ceremony was held in July 2011. To protect the natural environment, the site was surveyed during the planning stage by Gifu Pharmaceutical University Professor Emeritus Mizuno Mizuo. The results of the survey confirmed the presence of the valuable plant species *lespedeza tomentosa* in the area. The species was transplanted to a protected area, and we are continuing to protect the plant. In addition, the Kawaaura River, which flows along the north side of the site, is inhabited by nekogigi (a type of catfish), a protected species. The town is also famous for its fireflies. To protect this natural environment, we continue to carry out afforestation activities, perform regular water quality surveys, and take noise measurements.



Lespedeza tomentosa



Nekogigi adult and spawn
(photo courtesy of: Shima Marineland)

For Our Employees

Improvement of Employee Communication and Technological Capability



The 4th KYB Robot Contest held! Advancing technology while having fun



The "Robot Contest" is a competition held by KYB in which we compete for technological advances and announce these results, all while communicating with employees and having fun. The KYB Group's technology was utilized, and with each robot containing tricks and ideas from the contestants, competition was heated. This year the competition was held for the fourth time, and the level of tasks was considerably higher than in previous years. The robot had to take a tray with a ball on it at two different difficulty levels and clear a slalom course and bars without dropping the ball. Competitors earned points if a robot carried the ball without dropping it, then threw it into a goal 1.5 meters high from three areas of varying difficulty. Key factors were not only speed, but also balance and accuracy. This year, a total of 16 teams from all group companies participated in this difficult course, competing in technological capability. Spectators included everyone from top management to employees and their families, totaling 359 people, and the atmosphere was full of excitement.

INSIDE

Implement important equipment inspections

At KYB Steering (Thailand) Co., Ltd., (KST) production lines, machines operate 24 hours a day.

Previously, a small fire had occurred in the production line machinery. These accidents not only caused losses in production time, but also incurred machine repair costs, causing major losses. It was therefore necessary to change some of the content related to safety work on the machines.

Since then, we have put in place permanent measures to prevent accidents by implementing important equipment inspections. At the end of every month, safety inspections of items such as water level control, temperature control, fire alarms, and sensor systems are carried out.

Additionally, engineers and safety managers have created special checklists for machines, as we continue to strive for accident-free production lines. Through these activities, we are:

- eliminating accidents at KST plants
- reducing expenses caused by machinery repair and changes
- eliminating time loss caused by accidents and small fires.




KST (Thailand)
Prapatsara

► Establishment of Safety Experience Dojo

The Safety Experience Dojo is a center for learning what safety is using various scenarios re-created within the plant. Actual machines and equipment are used so people can experience different risks and learn measures to prevent these risks. Domestically, 4 company plants and 1 partner plant currently use this activity. It is also being deployed to overseas bases, beginning with the United States in 2010, and Indonesia in 2011.

In safety training, both educational lectures and the experience of risks at the practice location are important. Safety Experience Dojos have opened at overseas bases so workers can experience the dangers inherent at their locations. The aim is to eradicate unsafe actions in actual work by having employees understand the scale of damage caused by accidents.



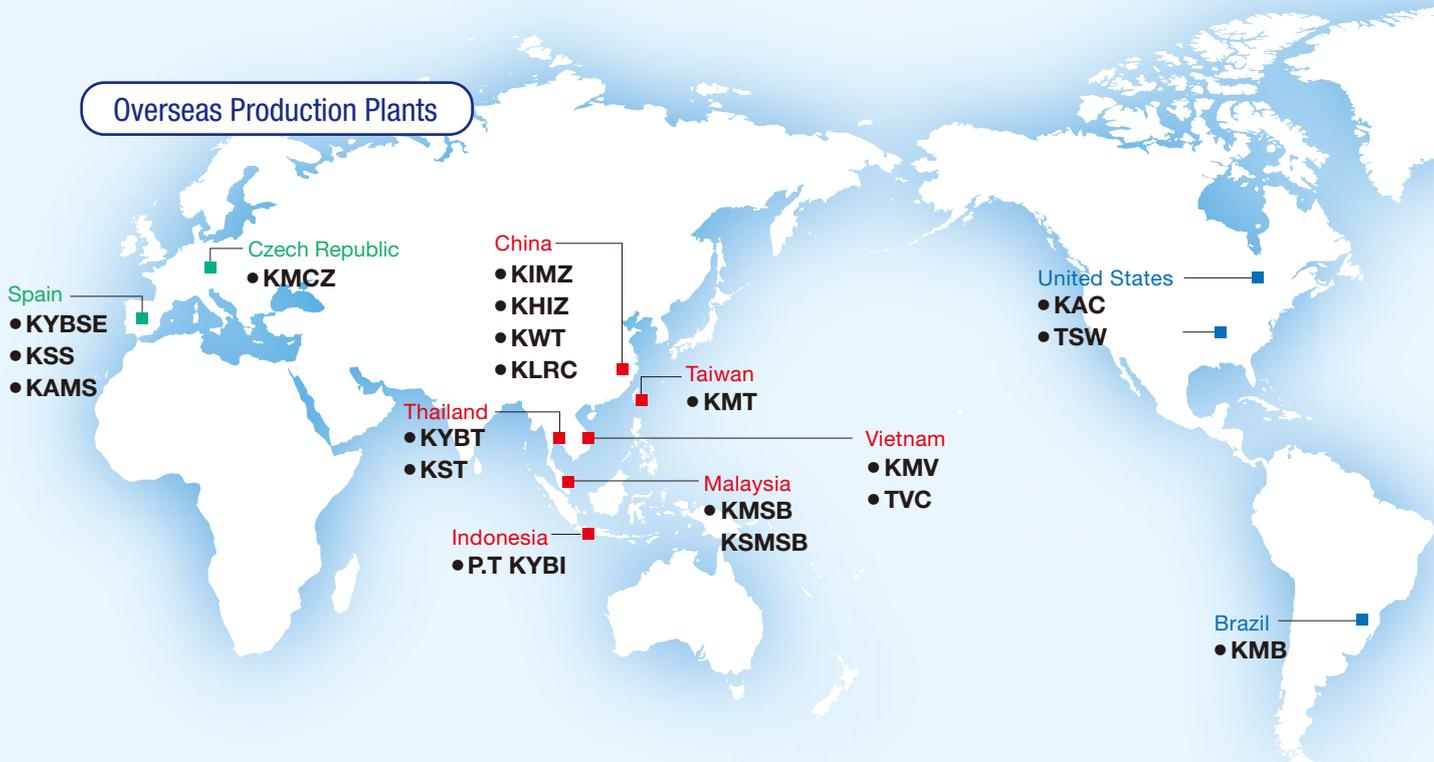
Reproducing actual work conditions and equipment in order to experience the risk



Global KYB

Acquisition of ISO 14001 certification has also begun overseas to carry out environmental preservation, waste reduction and safety measures as in Japan.

Overseas Production Plants



INSIDE

Head of overseas base

Asia

Protecting the vital environment of the Earth is the most important responsibility of the company.

With rapid economic development, people's lives and the environment are changing quickly. It is also a reality that while building a comfortable living environment, the things necessary for our survival create burdens on the global environment. With a deepened awareness of the importance and urgency of protecting the environment, which belongs to all people, KWT feels strongly about corporate responsibility, and is focused on decreasing the generation of industrial waste.

Some examples of completed field improvement activities include optimization of the MOPED rough grinding work flow, which cuts by more than half the amount of grinding fluid used and the amount of waste products generated; visualization of our parts inventory and maintenance of accurate levels to ensure that parts can be located and product amounts can be confirmed when needed for shipping; reduction of labor intensity during transport, and improvement of work efficiency.

We will continue making improvements in order to contribute to the environment and safety in the future.



Guo Maoying
KWT General Manager

Europe

As a European company, we are actively working on environmental preservation to protect the splendid natural beauty.

Each of the countries in Europe has its own stunning natural beauty, and they are actively working towards environmental preservation in the area.

KYBSE is an older company, established in 1973, but we received ISO 14001 certification in 2002, and as a member of the European business community, we are developing a variety of environmental preservation activities.

In fiscal 2011, we changed to a water-soluble paint and introduced automatic waste fluid processing equipment. In addition, we set up a corner in our newly opened training center to teach basic knowledge of environmental preservation and safety and provide training for our employees.

In order to follow all European standard values, which are expected to become even more stringent in the future, we have decided on and executed an investment plan for our aged facilities and equipment, and continue to work actively on various activities in order to be in harmony with nature.



Toshihiko Hatakeyama
KYBSE President
(Current Deputy General Manager, Gifu North Plant)

Asia



P.T Kayaba Indonesia (P.T KYBI)/ Indonesia

Safety activities that start in the home

At P.T KYBI, safety training is performed together with the employees' families. Under the catch phrase "Loving Mom and Dad", approximately 250 people from employees' families participated, learning the importance of safety by experiencing the Safety Dojo, visiting production lines, and receiving traffic safety training. The 2011 company slogan "Cost reduction and safety" spread from inside the company to homes, and we hope that employees' knowledge of safety increases further.



Safety seminars with employee families

KYB Hydraulics Industry (Zhenjiang) Ltd. (KHIZ)/ China

Received a Work Safety Standardization 3rd-grade company certification

In February 2012, our efforts with documentation, on-site inspection, and investigations by external specialists were evaluated by the Zhenjiang administration of Work Safety and were authorized as the third-grade enterprise of Work Safety Standardization. We will continue to work towards achieving the second-grade certification in the future.



Certification for the third-grade enterprise of Work Safety Standardization

KYB Industrial Machinery (Zhenjiang) Ltd. (KIMZ)/ China

Environmental improvement: Reduction of waste products and decrease of wasted working fluids

In order to reduce the disposal of working fluids and drums, we developed a new work fluid tank (with a volume of 60m³), which was put into use in March 2012. The use of this tank will save 2,000ℓ of fluids per year and decrease the number of disposed drums by 2,000 per year.



Working fluid drum



Working fluid tank

Expansion of Work Safety Standardization activities: "Work Safety frontrunner" award presented to General Manager

In March 2011, KIMZ implemented work safety standardization activities, which included strengthened risk management, creation and review of its safety management system, and investigation and reduction of risks in production equipment and work safety. At the end of September 2011, the company was inspected by the New Area administration of Work Safety and other specialists and passed the Work Safety Standardization requirements. General Manager Minogawa, who was in charge of this project, received special public acknowledgement from the Zhenjiang New Area government and was awarded the "Work Safety Frontrunner" award.



Work Safety Standardization Certificate





**KYB Hydraulics Industry (Zhenjiang) Ltd. (KHIZ)/
China**

Reducing the amount of cutting fluid used through lateral expansion of the Gifu South Plant

The cutting fluid currently used in S&R/B finishing machines is an oil-based cutting fluid, which is different from that used in Japan's Gifu South Plant. In spring of 2011, two assembly lines were added due to increased production of KCH cylinders, and chip compressors with capabilities proven at Gifu South Plant were introduced on these lines. Accordingly we were able to drastically reduce the amount of cutting fluid used for replenishment (Magplus LA-20).

Cutting fluid reduction amounts (basic unit): 450mL/line → 50mL/line



Chip compressor



Assembly lines A and B



Assembly lines C and D

Improvement of waste fluid location

AB-system drainage, Cr-system drainage, and alkali waste fluids were had been stored outside the plant. Due to anxiety regarding storage conditions in case of rain or leakage from the containers, we set up a new waste fluid location. We also dug a gutter and pit to contain any leakage, and specified a place for each type of waste fluid.



Roof covering the location
Location displayed for each waste type

A gutter and pit were excavated to contain fluid leakage.

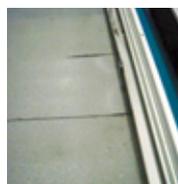


**KYB Steering Spain, S.A. (KSS)/
Spain**

Safety and hygiene improvements in 2011

As assembly and processing line springboards were made of wood, moisture from fluids caused expansion and uneven levels over the passage of time, causing employees to stumble. This required frequent changing of the boards, leading to high maintenance costs.

The springboard material was then changed to aluminum. Aluminum springboards do not expand, have a long lifespan, and can be coated with non-slip paint, so they can be reused, reducing maintenance costs. We will continue to work towards safety and hygiene improvements and cost reduction.



Wood materials



Aluminum materials



**KYB Advanced Manufacturing Spain, S.A. (KAMS)/
Spain**

Manufacturing areas tackling the reduction of consumption of chemicals

At KAMS, various chemical products were used in water treatment plants and painting facilities. We requested support from a specialist in processes at water treatment plants, and started a process analysis to reduce the amount of chemical substances while maintaining the quality of the processes. With this review, we were not only able to reduce the use of chemical substances, but also managed to decrease maintenance time.

As a result, we were able to omit various types of chemicals from the process and reduce water treatment costs by 25%. This activity was part of the CO₂ reduction program, and we feel that our mission involves reducing the burden on the environment and contributing to society. In the future, we plan to continue looking into ways to reduce water consumption.



**KYB Suspensions Europe, S.A. (KYBSE)/
Spain**

Automatic drainage filtration system for the coating process

At KYSBE, we updated the filtration system from a manual to an automatic type, and were able to reduce the amounts of nickel and zinc in waste from the zinc phosphate coating process, which is part of the pretreatment for the painting process, to amounts that are clearly under the legal limits.

As a result, waste water and sludge in the tank is separated cleanly and reliably, so waste water is now reused in the plant.



Before improvement: Manual system



After improvement: Semi-automatic system



**KYB Americas Corporation (KAC)/
United States**

Birth of KYB Americas Corporation

On October 1, 2011, the former KMNA production site in north USA's Indiana state and the former KAC commercial base in Chicago merged to form KYB Americas Corporation (KAC).

In the future, commercial warehouses will move from Chicago to Indiana, with plans to supervise operations in North, Central, and South America from here. With the manufacturing industry in a tough situation globally, this move is seen as a positive development of solidarity, and many have high hopes for this activity.

The setting for this new beginning was a customary "open house" event at the former KMNA. Since employees and their families participated, the ceremony had a more bustling atmosphere compared to other years. During the new company ceremony, the structure of the new KAC was introduced, and a new step forward was taken.



Open house



Ceremony celebrating the founding of a new company

Harmful energy separation – Improvement of lock-out/tag-out procedure

Ensuring the safety of maintenance work should be the responsibility of all KYB bases, and it is also regarded highly here at KAC. During much of the maintenance work, it is necessary to remove energy (pneumatic, electric, etc.) from the equipment and lock them down to prevent them from suddenly moving. This is called "lock-out/tag-out".

Until now, equipment maintenance was carried out at KAC using a general lock-out/tag-out procedure. But since industrial accidents still occurred, this procedure was abolished and a new one was created.

In addition, a manual was created for each of the 873 pieces of equipment. The revised manual contains important information and improves the safety of each piece of equipment.



Procedure manual



Our Precision, Your Advantage

URL:www.kyb.co.jp

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