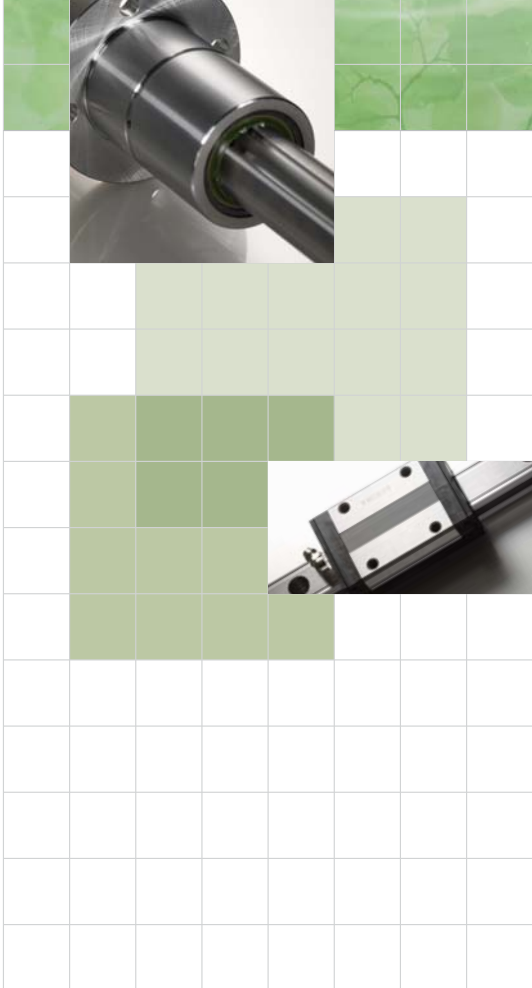




# Harmony with the environment



**THK regards environmental conservation as its duty and strives for business activities that enable harmonious coexistence with the environment.**

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The first commitment period of The Kyoto Protocol has begun. In its fourth report the Intergovernmental Panel on Climate Change noted “the direct involvement of human activity in global warming.” Protecting the environment is a common responsibility for the entire human race. A company’s efforts to address environmental issues are essential to its existence and activities as a corporate citizen.

As a manufacturer of machine tools, THK has contributed to society and the economy through its pioneering development of “LM Guides” and “Linear Motion Systems”. From an environmental perspective, by providing technology that converts sliding motion into rolling motion the company has helped to reduce environmental burdens by enabling its customers to save energy and space, reduce the use of lubricants, reduce noise, and reduce working hours. THK believes that a company has a social responsibility to protect the environment and leave it in good condition for the next generation.

**THK established its basic environment policy in 2001, and, in 2005, identified a set of areas and targets for environment efforts. In fiscal 2007, the company set new medium-term numerical targets for material conservation, zero emissions, and harmful substance controls, and is now taking concrete steps to achieve these targets.**

### Basic environment policy

Since the development of the LM Guide, the THK Group has contributed to both society and the economy through its pioneering role as a manufacturer of linear motion systems and machine components. We believe that it is a company's social responsibility to

leave the global environment in a good condition for the next generation, which is why we are undertaking the following initiatives to continually decrease environmental burdens and maintain and improve the natural environment.

#### THK Group's basic policy regarding the environment

1. Conservation of the environment is considered a major management concern, and we are striving to accurately grasp the impact on the environment produced by the Group's business activities, products, and services. Every division participates by setting relevant environmental goals.
2. In addition to following environmental laws, we set self-imposed standards for Group companies and regularly review them to improve the efficiency and effectiveness of our environmental management.
3. We will continually promote the development of products that help reduce environmental burdens.
4. We will continually promote conservation and recycling of resources, with particular attention to reducing and recycling waste from our manufacturing divisions.
5. To promote greater unity in our environmental activities, we will provide guidance and support to our affiliates and business partners, and strive to work in cooperation and harmony with local communities.
6. This basic policy regarding the environment shall be disseminated to all divisions in the Group through education, training, and activities designed to improve awareness. We will disclose information concerning the environment to parties within and outside the Group in a timely manner.

#### Environmental activities and targets

| Area                                       | Objectives and goals   | Main activities  |
|--|--|--|
| Energy conservation                        | Cut greenhouse gas emissions   | ① Energy diagnostics<br>② Energy conservation<br>③ Use of clean energy   |
| Material conservation and zero emissions   | Reduce environmental impact: achieve zero emissions  | ① Input controls (materials, parts and by-products) to reduce usage and boost per-unit yields<br>② Controls on emissions and final waste disposal<br>③ Material re-use and recycling |
| Harmful substance controls                 | Eliminate and control harmful substances in THK Group production and distribution activities | ① Substitution of PRTR-designated substances<br>② Green procurement and purchasing   |
| Environment-friendly products and services | Develop products and supply services using LCA(Life Cycle Assessment) methods                | ① Caged Ball Product series development<br>② Extension of service life and maintenance-free periods  |

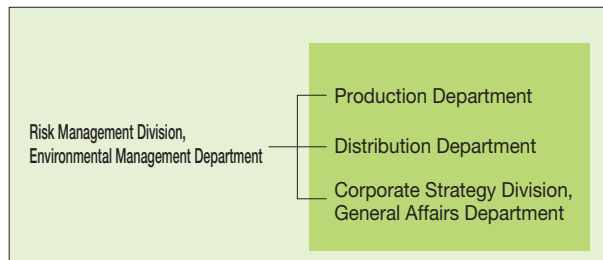
THK is actively striving to introduce ISO 14001 at all of its production sites in Japan and overseas and continually promotes environmental management based on applicable standards. Our Risk Management Division leads the effort to set companywide environmental targets, oversees progress in this area, and ensures that the departments concerned cooperate in taking measures to make certain that the targets are met.

### Environmental management system

To promote our companywide environmental measures, the Risk Management Division's Environmental Management Department, the Production Department, the Distribution Department, and the Corporate Strategy Division General Affairs Department hold regular environmental meetings to monitor the progress we have achieved in each environmental field, as well as to study ways to cope with any problems and challenges encountered by the departments when pursuing their environmental measures.

While each department proceeds according to our annual plan, information on the concrete details of these activities is shared at the environmental meetings in an effort to disseminate it to other locations as well and benefit environmental activities companywide. In fiscal 2005, THK set a mid-term target of reducing

### Environmental meetings



CO<sub>2</sub> emissions per unit of output by 15% by 2010 relative to the 2005 level. In fiscal 2007 THK set mid-term numerical targets for material conservation and zero emissions, seeking to achieve emissions of less than 0.5% by 2010, and also set a 3% annual target for chemicals subject to the PRTR Law.

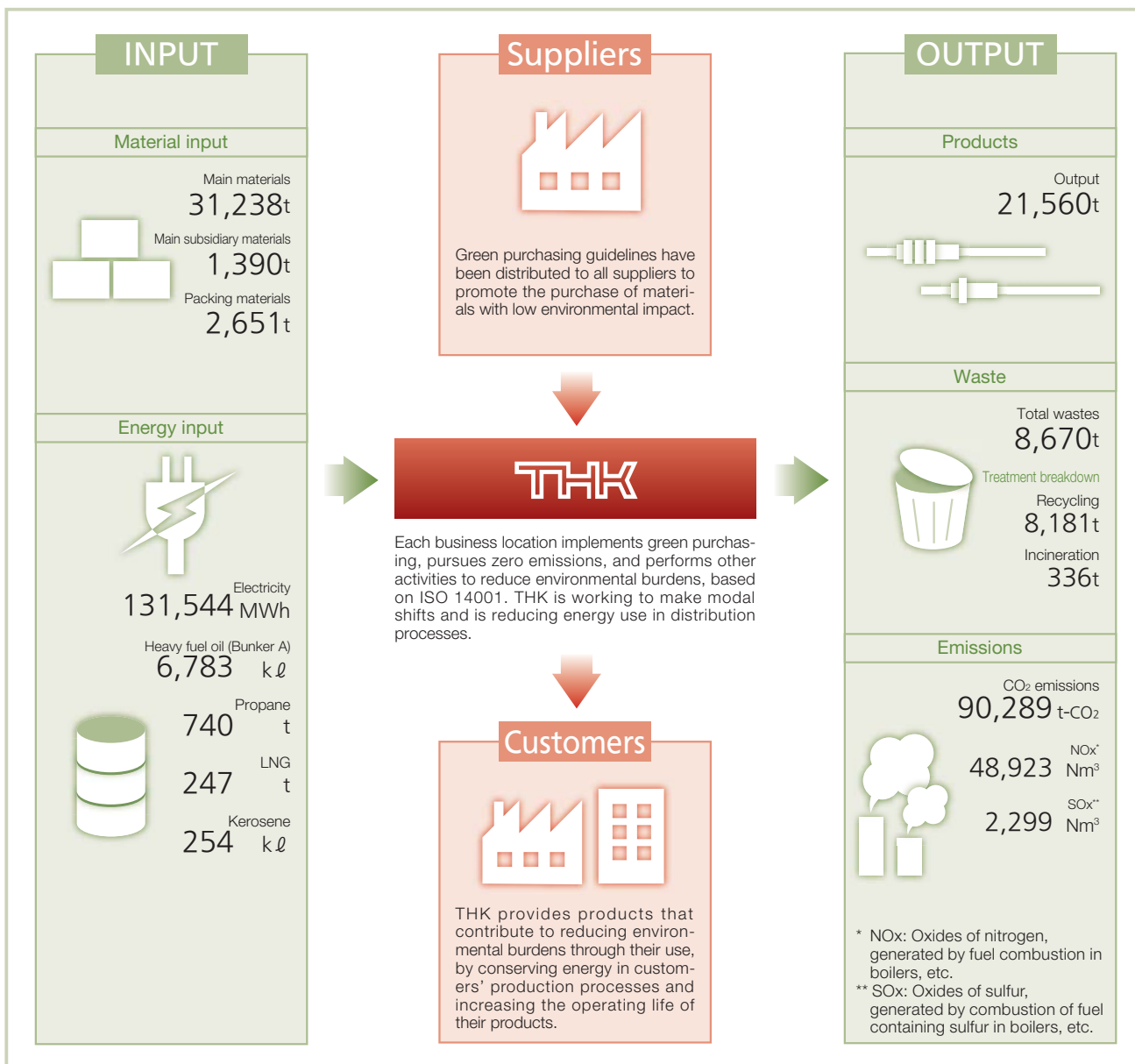
To reach these numerical targets, we will improve information sharing, coordinate our activities, and translate these targets into concrete measures.

### THK's environmental targets

| Field  | Fiscal 2008 targets  | Mid-term targets (by fiscal 2010)  |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
|--|--|--|------|--------------------|--------------|------|--------|--------|------|--------|--------|------|--------|--------|------|--------|--------|------|--------|--------|------|------|------|
| Energy conservation                                      | <p>CO<sub>2</sub> emissions basic unit to be reduced by 9% relative to the 2005 level</p> <ol style="list-style-type: none"> <li>Reduction in absolute power consumption</li> <li>Introduction of energy diagnoses and ESCO*</li> <li>Introduction of clean energy</li> <li>Introduction of high-performance and high-efficiency equipment (cooling and heating machines, compressors, manufacturing equipment, lighting, etc.)</li> </ol> | <p>Reduction of CO<sub>2</sub> emissions basic unit by 15%</p> <p>Standard value: 1.08 kg-CO<sub>2</sub>/1,000 yen (relative to fiscal 2005)</p> <table border="1"> <caption>CO<sub>2</sub> emissions basic unit (kg-CO<sub>2</sub>/1,000 yen)</caption> <thead> <tr> <th>Year</th> <th>Actual performance</th> <th>Target value</th> </tr> </thead> <tbody> <tr> <td>2005</td> <td>1.10</td> <td>1.10</td> </tr> <tr> <td>2006</td> <td>1.05</td> <td>1.05</td> </tr> <tr> <td>2007</td> <td>1.10</td> <td>1.00</td> </tr> <tr> <td>2008</td> <td>1.05</td> <td>0.95</td> </tr> <tr> <td>2009</td> <td>1.00</td> <td>0.90</td> </tr> <tr> <td>2010</td> <td>0.95</td> <td>0.85</td> </tr> </tbody> </table> | Year | Actual performance | Target value | 2005 | 1.10   | 1.10   | 2006 | 1.05   | 1.05   | 2007 | 1.10   | 1.00   | 2008 | 1.05   | 0.95   | 2009 | 1.00   | 0.90   | 2010 | 0.95 | 0.85 |
| Year   | Actual performance   | Target value   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2005   | 1.10   | 1.10   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2006   | 1.05   | 1.05   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2007   | 1.10   | 1.00   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2008   | 1.05   | 0.95   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2009   | 1.00   | 0.90   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2010   | 0.95   | 0.85   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| Material conservation and zero emissions                 | <p>Emissions rate to be reduced to less than 2%.</p> <ol style="list-style-type: none"> <li>Reduction of absolute amount of waste</li> <li>Reduction of general waste</li> <li>Increase of recycling rate</li> <li>Increase of yield ratios (reduction of reject percentage)</li> <li>Reduction of wastewater discharge</li> </ol>   | <p>Achievement of zero emissions (less than 0.5% of final waste disposal)</p> <p>Standard value: 4.7% (relative to fiscal 2006)</p> <table border="1"> <caption>Final waste disposal (%)</caption> <thead> <tr> <th>Year</th> <th>Actual performance</th> <th>Target value</th> </tr> </thead> <tbody> <tr> <td>2006</td> <td>4.7</td> <td>4.7</td> </tr> <tr> <td>2007</td> <td>4.0</td> <td>3.5</td> </tr> <tr> <td>2008</td> <td>2.0</td> <td>1.8</td> </tr> <tr> <td>2009</td> <td>1.0</td> <td>0.8</td> </tr> <tr> <td>2010</td> <td>0.5</td> <td>0.5</td> </tr> </tbody> </table>  | Year | Actual performance | Target value | 2006 | 4.7    | 4.7    | 2007 | 4.0    | 3.5    | 2008 | 2.0    | 1.8    | 2009 | 1.0    | 0.8    | 2010 | 0.5    | 0.5    |      |      |      |
| Year   | Actual performance   | Target value   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2006   | 4.7  | 4.7  |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2007   | 4.0  | 3.5  |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2008   | 2.0  | 1.8  |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2009   | 1.0  | 0.8  |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2010   | 0.5  | 0.5  |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| Harmful substance controls (promoting green procurement) | <p>Amount of materials subject to PRTR Law to be reduced to 15,600 kg or less.</p> <ol style="list-style-type: none"> <li>Green procurement</li> <li>Green purchasing</li> <li>Cooperation with suppliers</li> </ol>   | <p>Reduction of materials subject to PRTR Law (3%/year)</p> <p>Standard value: 16,664 kg (relative to fiscal 2006)</p> <table border="1"> <caption>Materials subject to PRTR Law (kg)</caption> <thead> <tr> <th>Year</th> <th>Actual performance</th> <th>Target value</th> </tr> </thead> <tbody> <tr> <td>2006</td> <td>16,664</td> <td>16,664</td> </tr> <tr> <td>2007</td> <td>15,000</td> <td>16,000</td> </tr> <tr> <td>2008</td> <td>14,000</td> <td>15,500</td> </tr> <tr> <td>2009</td> <td>13,500</td> <td>15,000</td> </tr> <tr> <td>2010</td> <td>13,000</td> <td>14,500</td> </tr> </tbody> </table>   | Year | Actual performance | Target value | 2006 | 16,664 | 16,664 | 2007 | 15,000 | 16,000 | 2008 | 14,000 | 15,500 | 2009 | 13,500 | 15,000 | 2010 | 13,000 | 14,500 |      |      |      |
| Year   | Actual performance   | Target value   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2006   | 16,664   | 16,664   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2007   | 15,000   | 16,000   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2008   | 14,000   | 15,500   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2009   | 13,500   | 15,000   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |
| 2010   | 13,000   | 14,500   |      |                    |              |      |        |        |      |        |        |      |        |        |      |        |        |      |        |        |      |      |      |

\* ESCO: Energy Service Company; a business that provides comprehensive energy efficiency services, thus contributing to the protection of the environment

The data below was collected from THK's five plants in Japan, as well as from THK NIIGATA Co., Ltd. and DAITO SEIKI Co., Ltd.'s three production sites in fiscal 2007. THK began accumulating data on the cost of protecting the environment in fiscal 2007.



Harmony with the environment

**Cost of environmental protection**

(Units: ¥ million/year)

| Cost classification                   | Investment*  | Expenditures** | Main measures  |
|---------------------------------------|--------------|----------------|--|
| (1) Business areas                    |              |                |  |
| Pollution control                     | 5.6          | 19.4           | Repair of oil storage facility   |
| Environmental protection              | 391.7        | 55.7           | Energy-efficient equipment (replacement of transformers), renovation of air-conditioning equipment   |
| Resource recycling                    | 17.0         | 125.0          | Grinding sludge solidification equipment, expenditures for treatment of general and industrial waste |
| (2) Upstream/downstream cost          | 0.0          | 5.9            |  |
| (3) Control activities                | 0.0          | 155.6          | Expenditures for environmental measurements  |
| (4) R&D (including Development Dept.) | 6.3          | 276.1          |  |
| (5) Social activities                 | 0.0          | 0.4            |  |
| (6) Environmental clean-up            | 0.0          | 0.0            |  |
| <b>Total</b>                          | <b>420.6</b> | <b>638.1</b>   |  |

\* Investment: Funds spent on machinery and equipment whose effects will extend into the future beyond one year

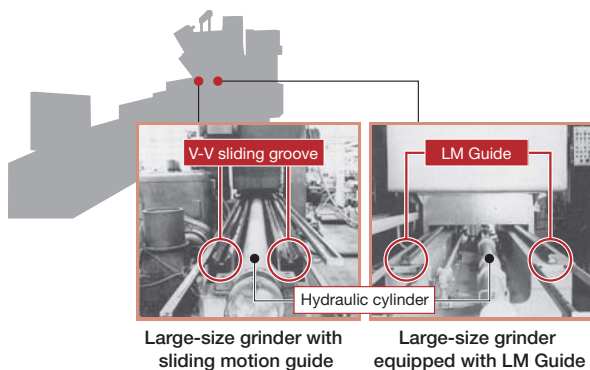
\*\* Expenditures: Funds expended on daily operations, including labor and other costs

The world's first LM Guides and Linear Motion Systems developed through THK's pioneering efforts not only help save energy but contribute to alleviating environmental impact in a variety of ways. THK embraces the basic concept of Cubic E in providing ever more environment-friendly products, such as the Caged Ball LM Guide.

### LM Guides reduce power consumption by 90%

THK's Linear Motion Systems convert the linear-motion component of machine tools from conventional "sliding motion" to "rolling motion", which results in a 90% reduction of energy consumption. This means that, from an energy perspective alone, these components qualify as environment-friendly products. THK's plants operate many manufacturing machines which themselves incorporate THK products. Their power consumption is so low that the local power companies have started asking questions. Linear motion systems save energy and are environment-friendly in many other ways as well. For example, they reduce the amount of lubricant needed, greatly reduce the frequency of disassembly and reassembly, and simplify maintenance.

#### Sliding motion of a large-size surface grinder



Large-size grinder with sliding motion guide

Large-size grinder equipped with LM Guide

#### LM Guide vs. sliding motion guide

|                                 | Sliding motion guide | LM Guide   | Effect                               |
|---------------------------------|----------------------|------------|--------------------------------------|
| Table mass (transfer mass)      | 5,000kg              | 5,000kg    | -                                    |
| Hydraulic pressure              | φ160×1.2MPa          | φ65×0.7MPa | Diameter:60% less, pressure:42% less |
| Thrust                          | 23,600N              | 2,270N     | 90% less                             |
| Motor                           | 38.05kW              | 3.7kW      | 90% less                             |
| Power consumption               | 38kWH                | 3.7kWH     | 90% less                             |
| Hydraulic drive oil consumption | 400 l /yr            | 250 l /yr  | 37% less                             |

### Cubic E

All THK products are created according to the "THK's Cubic E Concept" (E<sup>3</sup>: Cubic E), a development principle devoted to environmental protection (ecological), high added-value (economical), and durability (endless).

Ecological refers to protecting the environment, including eliminating contaminants, improving the working environment, and reducing waste. Economical refers to minimizing production cost and creating durable multifunctional products. Endless refers to improving the serviceability of products, extending operational life, and making them maintenance-free.

### Caged Ball Products

The most important innovation that our Cubic E concept has produced is the Caged Ball Product series which includes the LM Guide, Ball Screw, and Ball Spline. The addition of a cage to conventional ball-type products has helped us meet the demands of the times by further increasing the efficiency of our products, making them more environment-friendly, improving performance, reducing cost, and reducing the need for maintenance. "The balls (internal rolling elements) are retained and guided by a cage (retainer), in which the balls circulate in a spinning motion." While this may sound easy, the development of our Caged Ball Products entailed a 10-year-long process of trial and error.

#### Caged Ball LM Guide Light



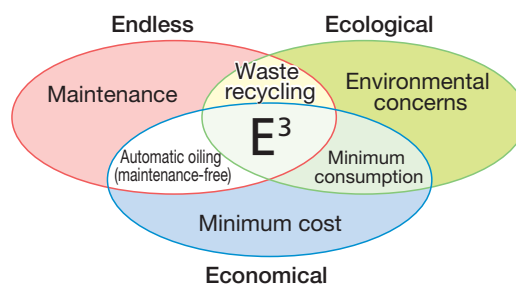
The LM Guide Light model has only 40% of the mass of the conventional LM Guide. It also helps boost the speed of a machine and saves energy.

#### Caged Ball Screw Model SBN



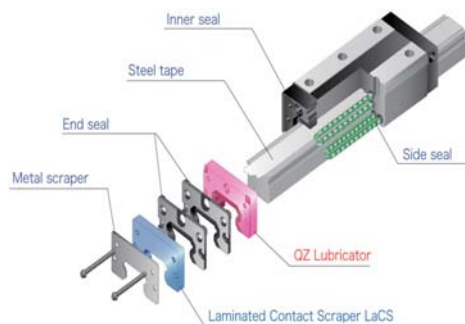
The Caged Ball makes for smooth and stable operation, as well as long-term maintenance-free, low-noise operation.

#### Cubic E



Fully maintenance-free approach

#### Three-dimensional visualization



Caged Ball LM Guide



THK addresses energy conservation and the reduction of greenhouse gases by making improvements on multiple levels. These include introducing energy conservation equipment, changing over to alternative fuels, and implementing the company's TAP II Project. These measures were implemented in fiscal 2007, but due to a variety of factors, including increased demand and the startup of new production plants, overall greenhouse gas emissions increased.

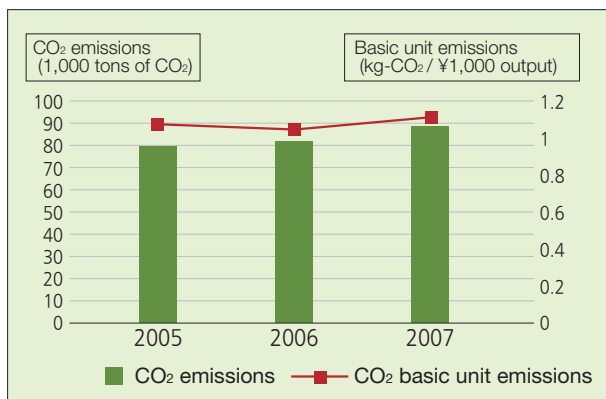
### Reducing CO<sub>2</sub> emissions

THK uses energy in various machining processes, including cutting, grinding, heat treatment, and operation of air compressors, as well as for air-conditioning, lighting, and other purposes. To reduce our CO<sub>2</sub> emissions, we have comprehensive power-saving measures in place and are making the utmost effort to reduce the power consumption of our equipment.

Our mid- and long-term energy conservation objectives are (1) energy diagnoses (to analyze energy consumption in buildings, mechanical drives, air conditioning, lighting, compressors, etc.); (2) energy conservation (concrete measures based on the results of energy diagnoses); and (3) increased use of natural gas, solar power, and other clean energy technologies. Through these measures, we intend to reduce CO<sub>2</sub> basic unit emissions (kg-CO<sub>2</sub>/¥1,000 of output) by 15% by 2010, compared to our fiscal 2005 level.

Our efforts in fiscal 2007 were geared toward updating our equipment to achieve higher productivity and efficiency through various improvements, which included switching to energy conservation heat and cooling systems, installing inverter-type lighting fixtures, fractionalizing switching times of light switches, centralizing compressors, and initiating TAP II activities. Power consumption increased, however, at our YAMAGATA Plant's Unit III, the THK NIIGATA Plant III, and other production sites, and the hot summer caused an increase in power consumed by air-conditioning systems. As a result, we recorded CO<sub>2</sub> emissions of 90,289 tons (7,132 tons more than the previous year), and CO<sub>2</sub> basic unit emissions of 1.12 (an 8.5% increase over the previous year). Although the energy consumption situation deteriorated in fiscal 2007, we will continue to strive to reach our 2010 targets.

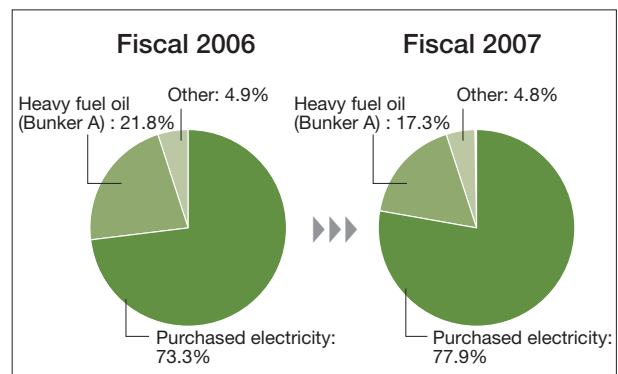
### Reducing CO<sub>2</sub> emissions



### Changing energy consumption

Energy sources used at THK include electricity purchased from power companies, heavy fuel oil (Bunker A), petroleum fuels such as propane gas, and liquid natural gas. Over the last few years, we have been trying to cut back our use of heavy fuel oil and use more purchased electricity instead, to curb CO<sub>2</sub> emissions as much as possible. Cutting back on our use of heavy fuel oil will also help lower NO<sub>x</sub> and SO<sub>x</sub> emissions.

### Energy consumption breakdown



### Practicing energy conservation

In our quest for higher productivity, the "3M rule" plays an important role. This rule sets forth three Japanese concepts to keep in mind in order to prevent waste: *muri* (excess), *muda* (waste), and *mura* (lack of consistency). The "5S rule", meanwhile, offers positive concepts: *seiri* (order), *seiton* (tidiness), *seiketsu* (cleanliness), *seiso* (cleaning up), and *shitsuke* (discipline). People at THK have been following these rules since our company was founded. Every employee faithfully observes these rules, which apply to a wide range of activities. Local employees at TMA voluntarily work on implementing proposal for improvements and practicing the 5S rule. Energy conservation means making an effort to cut back on power consumption in day-to-day operations, for example, by turning the lights off more frequently and adjusting thermostats to the proper temperature. Through such people-based measures, we have been able to reduce power consumption by 2 to 5%.



TMA's improvements bulletin board

### Energy-saving technology for furnace equipment

THK is gradually shifting from conventional carburizing furnaces using methane or propane gas to “vacuum carburizing furnaces,” which use only roughly half the amount of energy and emit hardly any CO<sub>2</sub>.

The old carburizing furnaces had drawbacks in that they generated and accumulated soot, which made them maintenance-intensive. In vacuum carburizing furnaces, the quenching takes place in a hermetically sealed vessel, so no smoke or flames are generated.

Our adoption of vacuum carburizing furnaces has yielded many benefits, even beyond environmental aspects. In addition to energy conservation and reducing CO<sub>2</sub> emissions, we have been able to (1) shorten treatment times, (2) increase product quality, (3) improve working conditions, and (4) increase safety.

As of March 2008, we have a total of 17 vacuum carburizing furnaces in operation at our production locations in Japan and overseas.



▲ Vacuum carburizing furnace at the YAMAGUCHI Plant

### Energy-saving lighting fixtures

At THK NIIGATA, over the past five years power consumption has increased about 30% per year due to building expansion and installation of additional production equipment and ancillary facilities. In an effort to reduce power consumption, the plant has begun replacing its 400-Watt mercury-vapor lights with new 360-Watt eco-type lights, without any loss of illumination on the shop floor.

At present, 66 out of 120 mercury-vapor lights have been replaced. This has reduced annual power consumption by roughly 10,500 kWh, which corresponds to approximately 5.8 tons of CO<sub>2</sub>.



▲ Newly installed mercury-vapor lamps

### Efforts at the KOFU Plant

At all of THK's plants, a broad range of improvement activities have been underway, including TAP II. These activities are extremely relevant from an environmental perspective. People often say that you can't expect results unless everyone changes their attitudes. For example, efforts in our day-to-day lives, like not throwing things away, don't come overnight.

Fortunately, the idea of taking good care of things has been deeply rooted in our employees ever since the plant was founded. Our Environmental Management Section regularly instructs employees in environmental management, but for this education to achieve any practical results, I think it has to be founded on a willingness to make improvements. Machines and equipment are replaced year after year with more energy-efficient equipment, but the environmental performance of the equipment depends to a large extent on how we use them.

At our KOFU Plant, we engage in companywide environmental efforts addressing the four main themes: (1) energy conservation, (2) material conservation and zero emissions, (3) harmful substance controls, and (4) environment-friendly products and services. To effectively carry out these activities, each of us must follow the established rules, and all of us have to fulfill our du-

ties responsibly. I believe that environmental activities, like manufacturing activities, are an accumulation of day-to-day efforts. We are told to increase our environmental performance through all sorts of activities, but I would like to continue working toward achieving our targets by steadily sticking to the basics.



▲ Toshiya Kamino  
Manager  
Environment Education Section  
KOFU Plant



At the KOFU Plant, used cooking oil discarded by employees' families is collected in a salvage depot, cleaned, and used as fuel for diesel forklifts.

**THK conducts a variety of activities designed to increase yield ratios for raw materials, decrease the amount of waste generated, and promote recycling via thorough separation of waste. In addition, we are continuing to work to achieve zero emissions by 2010.**

### Zero emissions

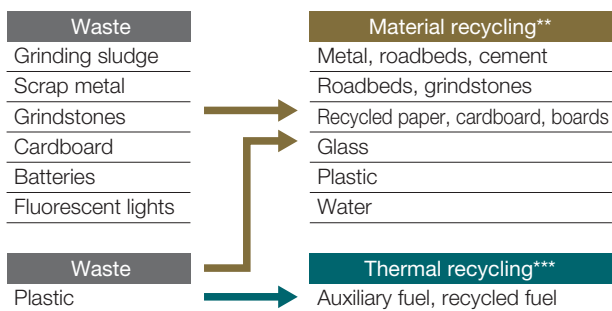
THK pursues zero emissions\* in three ways: (1) managing our input of raw materials, parts, and subsidiary materials; (2) managing emissions and waste for permanent disposal; and (3) encouraging reuse and recycling. While minimizing waste generation, we also rigorously separate and recycle the waste materials we do generate.

The principal materials used in THK products are metals, mainly steel. We are making an ongoing effort to improve the rail-cutting yield for “LM Guides” and the machining yield for “Ball Screw” shafts and nuts. In keeping with THK’s just-in-time production system, which provides the “necessary materials at the right time and in the right quantity”, the company minimizes waste by rigorously managing purchasing quantities and timing, while continually improving the process in various ways.

We also strive to reuse waste materials generated in our business activities, including scrap metal, waste oil, waste fluids, grinding sludge, packing materials, and plastic waste. Our recycling rate has increased from year to year. Depending on the material and content, waste materials are put to several uses. Metal waste is used as a raw material in steelmaking. Sludge containing grindstone powder is used as a raw material for cement. Waste oil is used as a fuel, and plastic waste and waste impregnated with oil are used in the manufacture of iron.

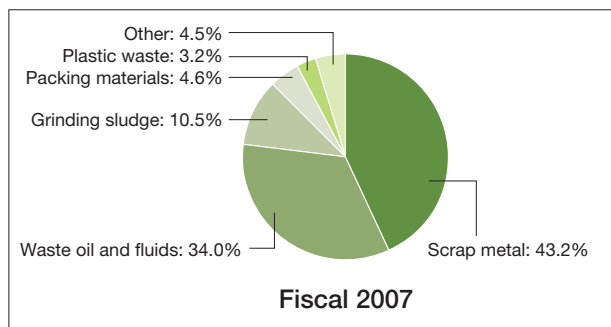
The amount of waste generated in fiscal 2007 rose by

#### Waste recycling methods



\*\* Material recycling: The reuse of waste, as a raw material.  
 \*\*\* Thermal recycling: The use of waste in combustion.

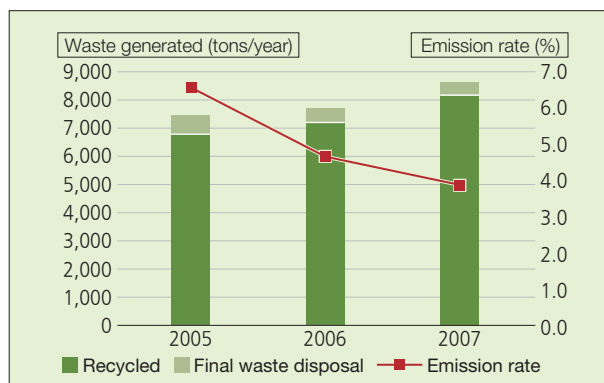
#### Waste



1,000 tons compared to the preceding year, but thanks to increased recycling, we achieved an emission rate (final waste disposal/total amount of waste generation) of 3.9%, which was 0.8% lower than that for the preceding year—an 18% improvement. Our plan for fiscal 2010 is to achieve emission rates of less than 0.5% for the entire THK Group.

\* Zero emissions: A model system for circulating resources, in which waste matter is used as a resource, leaving no waste whatsoever.

#### Trends in waste generation



### Our commitment to recycling

To increase our waste recycling rates, we must first determine how waste can ultimately be put to use and then thoroughly separate it accordingly. THK has established rules for separating industrial waste and ordinary waste into a maximum of 35 categories. Putting these strict separation rules into practice requires each employee to be properly aware of our responsibility to protect the environment. THK promotes recycling by providing employees with environmental education, to reinforce the importance of separating waste and recycling. We do this in various ways. For example, we use charts with simple photos depicting different types of plastic waste, which can be difficult to classify.



Charts with photos make sorting easier at the MIE Plant.



### Water-lubricated compressors

In May 2007, our YAMAGUCHI Plant introduced water-lubricated oil-free compressors. While conventional compressors are oil-lubricated and generate waste oil that has to be treated, the water-lubricated compressor is manufactured to environment-friendly specifications, using purified water that can be sent directly to a wastewater treatment facility. The water-lubricated compressor is also designed with machine-friendly features, such as low discharge temperature, low speed



▲ Water-lubricated compressor at the YAMAGUCHI Plant

capability, and low operating noise. It has fewer parts that need replacement and therefore is less susceptible to breakdowns, for stable long-term operation.

### Recycling cutting tools

THK NIIGATA used to regrind used drills, end mills, and other cutting tools for reuse, and after reuse discard them as scrap metal for use as construction materials, among other things. In fiscal 2007, THK NIIGATA changed to a system of circulating resources, which calls for used cutting tools to be reused as raw material for manufacturing cutting tools.

The raw materials for cutting tools, such as cemented carbide, contain rare metals such as “tungsten”. Thermit tools contain “titanium” and other rare metals. In fiscal 2007, the plant recovered roughly 25 kg of rare metals from cemented carbide and 34 kg from Thermit tools, for use as recycled materials.



▲ Separation of used tools by impurity content

### Grinding sludge solidification

Following the example set by our YAMAGUCHI and YAMAGATA Plants, our KOFU Plant introduced solidification equipment for grinding water-soluble and oily grinding sludge in fiscal 2007. In the past, sludge generated in grinding processes was reused in road construction, as part of the base material laid below the road surface. By mixing the sludge with waste from cutting processes and turning it into briquettes, we succeeded in recycling it as a raw material for steel products. At the KOFU Plant, this helped improve the environment in the manufacturing area and led to stepped-up efforts to maintain the 5S rules.



▲ Sludge solidification equipment at the KOFU Plant



▲ Solidified sludge at the KOFU Plant

### Recycling lights

Our YAMAGATA Plant has arranged for old fluorescent lights and other lights to be picked up and replaced so that the resources contained in the lights can be recycled for use at the plant. A contractor sorts the lights by content according to strict recycling rules. This enables the plant to reclaim its resources, and optimum treatment has resulted in zero emissions. A system has also been developed to reuse glass to manufacture new fluorescent lights.



▲ Recycled fluorescent lights and other lights

**THK promotes green purchasing along its entire supply chain. We ask our suppliers to provide services according to the principle of optimal Quality, Cost, and Delivery, to which we now have added Environment-friendliness. We want to further improve supplier cooperation in environmental matters to create a mutually beneficial relationships for environmental quality system.**

### Green purchasing

THK classifies chemical substances capable of having an adverse impact on human health or ecosystems as environmentally hazardous substances. Products that do not contain the 16 prohibited substances listed in the table or contain less than the acceptable level specified in “THK’s Green Purchasing\* Guidelines” are considered “green products.”

In fiscal 2004, THK published two sets of standards, the “Green Purchasing Guidelines” and “THK Group Chemical Substances Standards List.” The company also began requiring cooperating companies to be analyzed and surveyed concerning substances contained in their products, and asked each cooperating company to introduce an environmental management system. In this way we have succeeded in replacing hazardous substances such as lead, hexavalent chromium, and cadmium. As of April 2006, virtually 100% of our standard products are green products.

Based on information gathered in connection with green purchasing, THK has compiled a controlled substances database, on which is used to help us respond to customer inquiries.

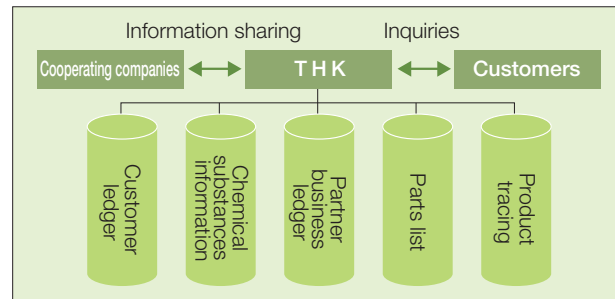
\* Green purchasing: Preferential purchasing of raw materials that have minimal environmental impact from suppliers who strive to reduce environmental burdens

#### Substances prohibited by THK

| Substance                                |
|--|
| Polychlorinated biphenyl (PCB)           |
| Polychlorinated terphenyls (PCT)         |
| Polychlorinated naphthalene (PCN)        |
| Chlorinated paraffin (CP)                |
| BIS (tributyltin) oxide (TBTO)           |
| Tributyle tins (TBT)                     |
| Triphenyl tins (TPT)                     |
| Asbestos                                 |
| Azo compounds                            |
| 2,4,6-tri-tertial-butyl-phenol           |
| ** Cadmium or cadmium compounds          |
| ** Lead or lead compounds                |
| ** Mercury or mercury compounds          |
| ** Hexavalent chromium compounds         |
| ** Polybrominated biphenyls (PBB)        |
| ** Polybrominated biphenyl ethers (PBDE) |

\*\* Complies with the RoHS directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment

#### Coordination with customers and cooperating companies



### Commitment to the PRTR Law

THK’s production processes consist for the most part of cutting and grinding and generally do not involve the use of chemical substances. Protecting the environment, however, entails not only reducing and managing the chemical substances contained in products but also substances used in work processes. We strictly follow the regulations for managing substances designated by the PRTR Law\*\*\*, and accurately monitor the amounts handled and emitted. In fiscal 2007, a mid-term target was set for reducing substances subject to the PRTR Law (see page 29). The present value is set at 3% annually, but we are considering a complete phase-out in the future.

Currently, the only substances requiring notification under the law are xylene and toluene, which are contained in the gasoline and diesel fuel used to power forklifts and other in-plant transport equipment. We are gradually switching to battery-operated forklifts. Substances subject to the PRTR Law are also used in negligible amounts in some of our air-conditioning equipment and in fluids used in grinding processes. We are currently working to reduce these amounts further.

\*\*\* PRTR Law: Law promoting better management and understanding of environmental emissions of designated chemical substances.

#### Substances subject to the PRTR Law

| Type          | Amount handled | Amount emitted into the atmosphere |
|---------------|----------------|------------------------------------|
| Xylene        | 5,845kg        | 50kg                               |
| Toluene       | 5,865kg        | 149kg                              |
| Ethyl benzene | 1,337kg        | 26kg                               |
| Benzene       | 1,012kg        | 55kg                               |

**THK not only implements environmental measures in product development and production processes, we have also started targeting distribution processes. In an effort to use less energy and reduce CO<sub>2</sub> emissions during transport, we are working on streamlining our entire distribution process through measures such as modal shifts and increased loading ratios.**

### Green distribution

To reduce environmental impact across the entire field of distribution, our Distribution Department, based in product centers throughout Japan, is currently developing "Green Distribution Guidelines". In fiscal 2006, a mid-term plan was drawn up, and measures are being taken to accurately calculate improvements in freight ton-kilometers\* and total energy used.

Our basic green distribution policy is directed at reducing CO<sub>2</sub> emissions and increasing transport efficiency. We are currently working on five initiatives:

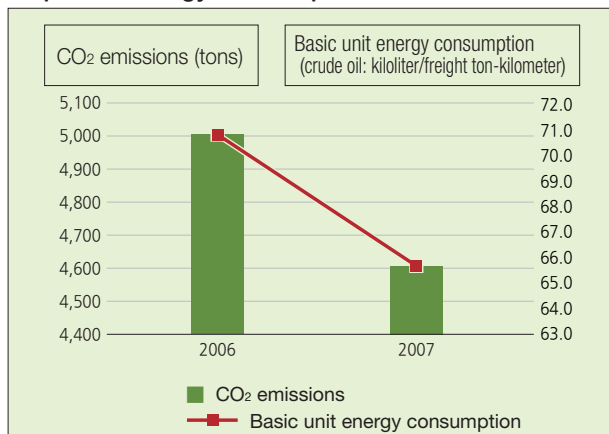
1. Introducing an environmental management system for the Distribution Department;
2. Promoting activities conducive to a healthy environment by
  - proposing modal shifts\*\* and
  - centralizing cargo trucks;
3. Promoting low-emission vehicles by
  - using low-emission company vehicles and
  - using low-emission forklifts and other equipment;
4. Undertaking activities to reduce environmental impact by setting up a system to cooperate with forwarders to improve transport efficiency, by
  - reducing CO<sub>2</sub> emissions,
  - taking measures to increase transport efficiency,
  - improving the loading ratios, and
  - promoting eco-driving habits; and
5. Recycling and lightening packing materials.

As a result of these measures, energy consumption in transport operations in fiscal 2007 decreased from the preceding year by the equivalent of 157 kiloliters of crude oil, and CO<sub>2</sub> emissions decreased by 408 tons of CO<sub>2</sub>, or approximately 8%.

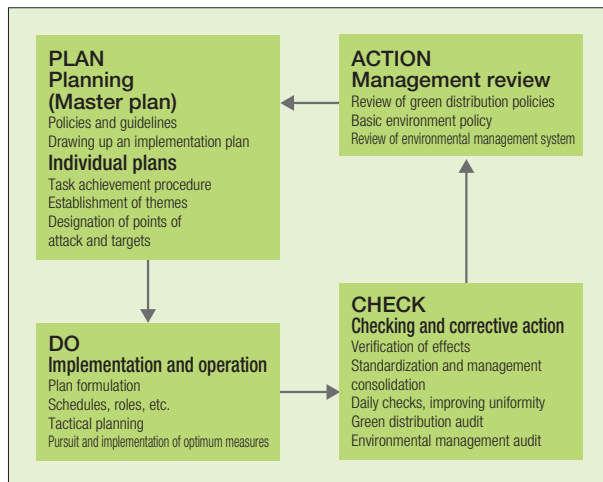
\* Ton-kilometer: Unit used to express amounts of cargo transported; one ton of freight transported one kilometer equals one ton-kilometer.

\*\* Modal shift: A transition from transport by truck to transport by sea and rail, to permit shipping in bulk and reduce CO<sub>2</sub> emissions

#### Trends in transport-related CO<sub>2</sub> emissions and specific energy consumption for THK alone



#### THK Distribution Department environmental management system



### Utilization of post pallets

THK has been using post pallets\* as a means of increasing the loading ratio during transport. This has enabled us to utilize loading space more efficiently by double-stacking cargo and has resulted in a roughly 1.5 times higher loading ratio. This enables us to fill the available space with other cargo, sparing us the use of an average of three trucks a month, which in turn results reductions in CO<sub>2</sub> emissions of around 5.48 tons a month.

At the same time, we are striving to reduce our impact on the environment by shifting to larger transport vehicles. Where we used to use two 10-ton trucks for deliveries, for example, often we now use one trailer truck. We would like to continue to expand this system as much as possible in cooperation and consultation with our customers.

\* Post pallet: A stackable pallet fitted with posts between the decks or beneath the top deck to keep cargo from falling over



Double-stacked post pallets