



- Award-winning works from Minebea's Environmental Art Contest, an event for children and teens in Thailand



Environment

Minebea Group Environmental Report 2003 Year Ended March 31, 2003

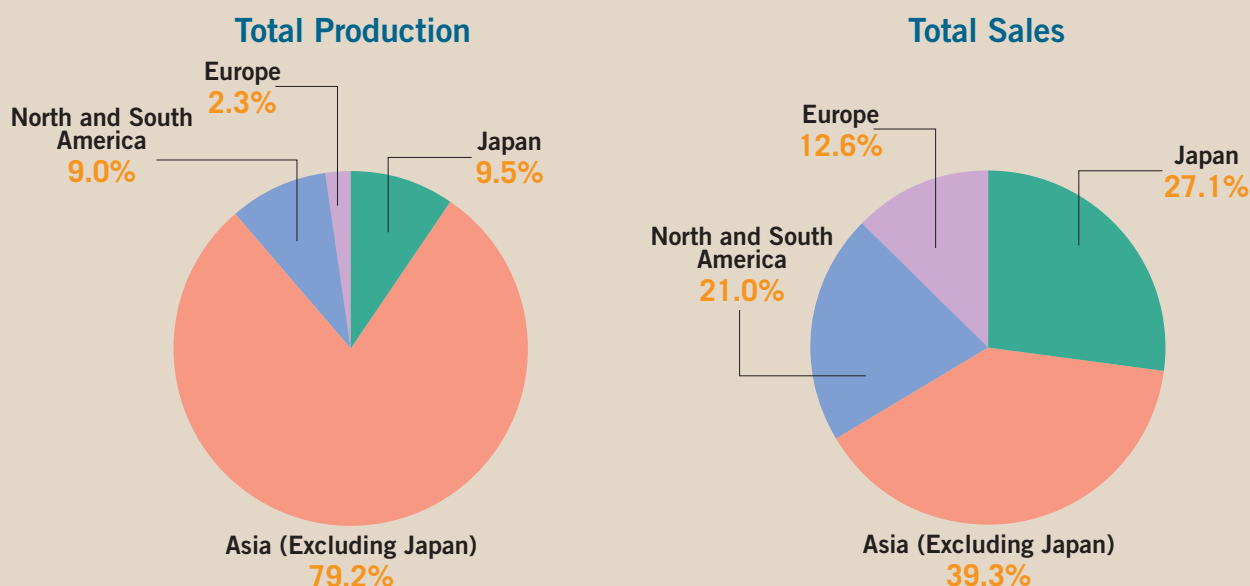
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CORPORATE INFORMATION

Minebea Co., Ltd.

Date of Establishment July 16, 1951	Operating Income (Year ended March 31, 2003) Consolidated: ¥19,352 million Nonconsolidated: 5,018 million
Capital (As of March 31, 2003) ¥68,258 million	Ordinary Income (Year ended March 31, 2003) Consolidated: ¥13,402 million Nonconsolidated: 11,062 million
Net Sales (Year ended March 31, 2003) Consolidated: ¥272,202 million Nonconsolidated: 162,952 million	Net Income (Loss) (Year ended March 31, 2003) Consolidated: ¥(2,434) million Nonconsolidated: 1,227 million
Consolidated Net Sales by Business Segment (Percentage of total) (Year ended March 31, 2003) Machined components ¥118,118 million (43.4%) Electronic devices and components 154,084 million (56.6%)	Number of Employees (Year ended March 31, 2003) Consolidated: 43,002 Nonconsolidated: 2,512

Consolidated Total Production and Total Sales by Region (Year ended March 31, 2003)



This report covers the Minebea Group's domestic and Asian operations, which together account for approximately 90% of total Group production.



Tsugio Yamamoto,
Representative Director, President
and Chief Executive Officer

Since humans first appeared on this earth, the ultimate goal of our endeavors has been to make our lives more convenient and more comfortable. Our efforts to this end have also exerted a significant negative impact on the global environment. Today, people everywhere recognize the urgency of addressing the environmental issues that have damaged our planet—threatening the survival of the many species upon it, including our own—and have begun the search for a pathway forward that will enable us to coexist with the environment.

As members of an industrial concern, each of us must also acknowledge that corporate activities place a severe burden on the environment, and that we have an obligation to do all in our power to minimize that burden. In the firm belief that a company that ignores its ethical responsibility to protect the environment and minimize degradation is a company that will be rejected by society, we have approached environmental protection as an essential aspect of management.

Over the years, Minebea has cultivated a strong environment-oriented corporate culture. By ensuring this culture is passed on to successive generations, we will strive to maintain a corporate ethos that places a strong emphasis on the environment, and to help create a world community in which all people are assured both a share in nature's bounty and a reasonable living standard.

We have prepared this report to facilitate a better understanding of Minebea's environmental activities by interested individuals and organizations. We welcome and appreciate your comments and advice regarding these activities and the content of this report.

August 2003

T. Yamamoto

Tsugio Yamamoto
Representative Director,
President and Chief Executive Officer



Ryusuke Mizukami,
Director, Senior Managing Executive Officer,
in charge of Environmental Preservation

Act now! Put your ideas into action.

Most of humanity recognizes the vital issues that threaten the global environment. We understand why these issues pose a threat and what measures must be implemented today to address them. Moreover, we understand what structures and systems must be put in place to facilitate these measures. Yet understanding alone will not lead to resolution—this will only come with action. Environmental policies and ISO 14001 certifications are nothing more than concepts and pieces of paper if they are not translated into concrete action.

Our overriding objective is to ensure that Minebea is not a cause of environmental degradation. With this in mind, we have developed a variety of initiatives based on a pragmatic assessment of what we, as one company, can do to ensure a global environment that will sustain a healthy, secure existence for this and coming generations. Active

implementation of these initiatives is the principal focus of our day-to-day environmental efforts. To this end, all Minebea Group plants worldwide have obtained ISO 14001 certification.

Minebea Electronics & Hi-Tech Components (Shanghai) Ltd., our second-largest mass production base, received two prestigious environmental awards in 2003. In June, the Shanghai Environmental Protection Bureau selected the company as one of eight exemplary companies committed to environmental protection in Shanghai. In August, the State Environmental Protection Administration of China recognized the company under the country's Top 100 Projects of National Environmental Protection program. Both awards recognize the participation of all of the company's employees in environmental efforts. The entire Minebea Group is committed to ensuring we remain worthy of these honors. We look forward to your support and encouragement.

August 2003

R. Mizukami

Ryusuke Mizukami
Director, Senior Managing Executive Officer,
in charge of Environmental Preservation

MACHINED COMPONENTS

Bearings and Bearing-Related Products



Miniature and small-sized ball bearings



RO bearings



Rod-end and spherical bearings

- Miniature ball bearings
- Small-sized ball bearings
- Integrated-shaft ball bearings
- RO bearings
- Fluid dynamic bearings
- Rod-end bearings
- Spherical bearings
- Roller bearings
- Journal bearings
- Pivot assemblies
- Tape guides

Other Machined Components



Fasteners



Precision machined parts

- Aerospace/automotive fasteners
- Special machined components
- Magnetic clutches and valves
- Precision machined parts

ELECTRONIC DEVICES AND COMPONENTS

Rotary Components



HDD spindle motors



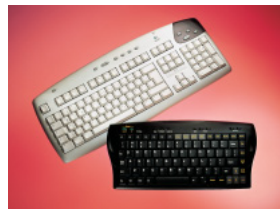
PM-type stepping motors



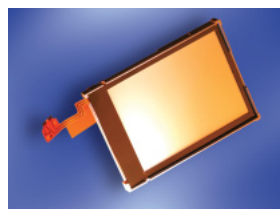
Fan motors

- Hard disc drive (HDD) spindle motors
- Hybrid-type stepping motors
- Permanent magnet (PM)-type stepping motors
- DC brushless motors
- Fan motors
- DC brushless motors for electric power steering systems
- Resolvers
- Synchronous motors

Other Electronic Devices and Components



PC keyboards



Lighting devices for LCDs



Speakers

- Personal computer (PC) keyboards
- Speakers
- Magneto-optical disc (MOD) drive assemblies
- Magnetic heads for floppy disc drives (FDDs)
- Lighting devices for liquid crystal displays (LCDs)
- Backlight inverters
- Hybrid integrated circuits (ICs)
- Strain gauges
- Load cells

- Period under review
Fiscal 2003 (Year ended March 31, 2003)
- Scope of report

This report covers the Minebea Group's domestic and Asian operations, which together account for approximately 90% of total Group production.

▶ Japan

Minebea Co., Ltd.

Karuizawa Manufacturing Unit (Karuizawa, Matsuida and Saku factories)

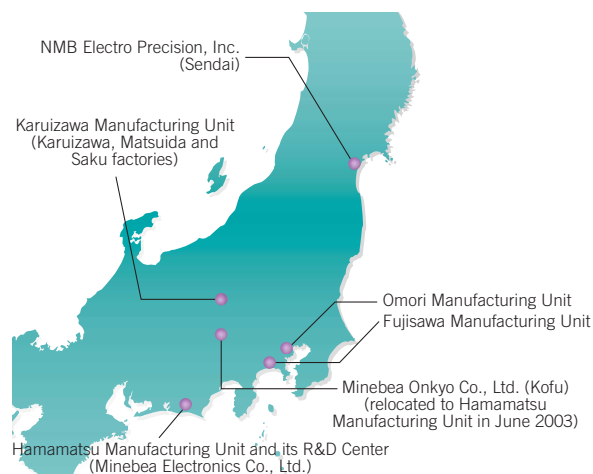
Fujisawa Manufacturing Unit

Omori Manufacturing Unit

Hamamatsu Manufacturing Unit and its R&D Center (Minebea Electronics Co., Ltd.)

Minebea Onkyo Co., Ltd. (relocated to Hamamatsu Manufacturing Unit in June 2003)

NMB Electro Precision, Inc.



▶ Asia

Thailand—All Minebea Group plants

China—All Minebea Group plants

Singapore—All Minebea Group plants



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- The objective of this report is to present the environmental efforts of Minebea Co., Ltd., and the companies of the Minebea Group to readers worldwide.
- This report has been prepared using the Japanese Ministry of the Environment's *Environmental Reporting Guidelines* as a reference.
- Industry terms and other potentially unfamiliar terms are explained on the page on which they first appear.
- This environmental report does not contain a report from an independent third party verifying the information herein as Minebea does not currently have a system in place for implementing third-party verification.
- Additional information about Minebea's environmental efforts is available in English at: <http://www.minebea.co.jp/english/company/business/environment/environment1.html>

The following table indicates sections required under the Japanese Ministry of the Environment's *Environmental Reporting Guidelines* and the page(s) in this report where corresponding sections may be found.

Guideline	Page(s)
1. Basic Headings	
a. CEO's statement	1
b. Basis of reporting (Reporting organization/Period/Fields/Division in charge of reporting/Contacts)	3
c. Summary of nature of business	Inside front cover
2. Summary of Policies, Targets and Achievements in Environmental Protection	
a. Management policies and philosophy regarding environmental protection	4
b. Summary of environmental protection targets, initiatives and achievements	8-9
c. Summary of environmental accounting information	10
3. Environmental Management	
a. Environmental management system	5
b. R&D in environment-conscious technologies/products/services (Design for the Environment [DFE]) and other areas related to environmental protection	12-15
c. Environmental communications	23
d. Compliance with environmental regulations	7, 16-19
e. Environment-related contributions to society	24-25
4. Activities Aimed at Reducing Environmental Burden	
a. Synopsis of environmental burden (Understanding/evaluation of life cycle of operations)	6-7
b. Environmental burden of material/energy input and mitigation efforts	6, 12-21
c. Environmental burden of upstream activities (Purchase of products/services) and mitigation efforts	11
d. Environmental burden of waste output and mitigation efforts	6-7, 12-21
e. Environmental burden of downstream activities (provision of products/services) and mitigation efforts	12-21
f. Environmental burden of transport/shipping and mitigation efforts	15
g. Environmental burden related to soil contamination, land use and other environmental risks and mitigation efforts	16-21

Established August 26, 1993

Minebea strives to contribute to higher quality, more comfortable lifestyles by providing truly valuable products and services. At the same time, the Company works to minimize the environmental burden of its various activities and promote greater harmony, thereby contributing to the preservation and improvement of a healthy environment.

Environmental Policy

1. Development/Design

Minebea shall focus on the development and design of products that contain no chemical substances harmful to the environment or the health and safety of humans, consume little energy and satisfy the "3R" criteria, that is, can be "reduced," "reused" or "recycled."

2. Manufacturing

Minebea shall set targets and restructure and revise its manufacturing procedures by using materials that contain no chemical substances harmful to the environment or the health and safety of humans, thereby improving yield, reducing waste output and lowering energy consumption.

3. Distribution

Minebea shall employ packaging materials that contain no chemical substances harmful to the environment or the health and safety of humans and satisfy the "3R" criteria, as well as procedures that lower energy consumption and prevent the release of harmful substances.

4. Cooperation with Authorities and Local Public Entities

When coordinating manufacturing and/or distribution activities in other countries, Minebea shall observe environment-related rules and regulations imposed by local authorities and support environmental protection efforts of local communities. At the same time, Minebea shall take a proactive approach to sharing new environmental protection technologies.

5. Overseas Activities

In its manufacturing and distribution activities overseas, Minebea shall observe environment-related protection rules and regulations imposed by local authorities and do its best to preserve the environment in adjacent areas. Minebea shall also be an aggressive supplier of new environmental protection technologies.

6. Environmental Audits

Minebea shall conduct periodical environmental audits at all of its production and other facilities with the aim of ensuring the effective implementation of its environmental management system and improving the system as necessary.

7. Employee Education

Minebea shall require employees to attend related courses to encourage their involvement in environmental protection activities in the workplace and at home.

8. Observe Minebea's Environmental Policy

All Minebea Group employees and other individual working at our sites shall adhere to Minebea's Environmental Policy. If any individual has an environment-related concern, he or she shall report it promptly to his or her manager, who shall respond promptly.

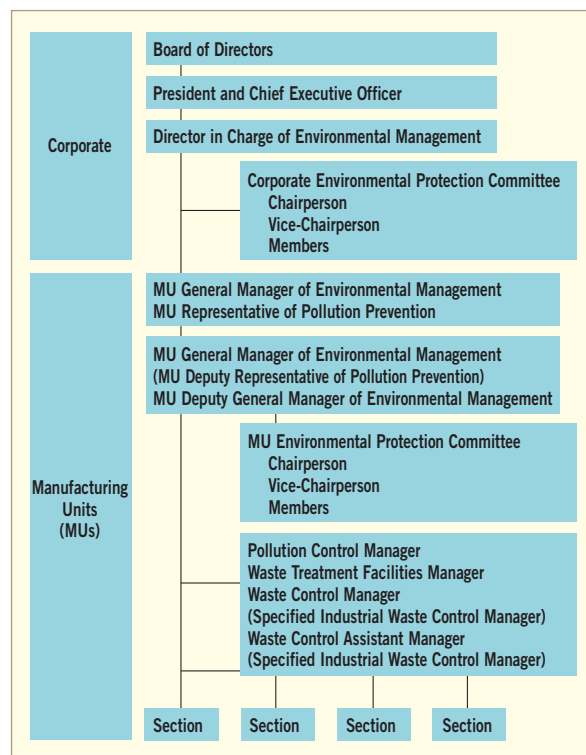
T. Yamamoto

Tsugio Yamamoto
Representative Director,
President and Chief Executive Officer
Minebea Co., Ltd.

Note: The above is an updated version of Minebea's Environmental Charter.

In July 1991, Minebea organized the Anti-CFC Committee with the aim of phasing out the use of specified chlorofluorocarbons (CFCs) and ethane as cleaning agents. In April 1993, Minebea became the first bearing manufacturer in the world to completely eliminate specified CFCs and ethane from all production processes. The Anti-CFC Committee, its objective met, was disbanded the same month and replaced by the Environmental Protection Committee. Since then, the Environmental Protection Committee has spearheaded environmental protection efforts for the entire Minebea Group.

In August 2002, the Minebea Group completed ISO 14001 certification for all Group plants worldwide.



Japan

- Minebea Co., Ltd.
 - Karuizawa Manufacturing Unit
 - Karuizawa Factory
 - Matsuida Factory
 - Saku Factory
 - Fujisawa Manufacturing Unit
 - Omori Manufacturing Unit
 - Hamamatsu Manufacturing Unit and its R&D Center
- Minebea Electronics Co., Ltd.
- Minebea Onkyo Co., Ltd.
- NMB Electro Precision, Inc.

Thailand

- Minebea Thai Ltd.
 - Ayutthaya Plant
 - Bang Pa-In Plant
 - Rojana Plant
- NMB Thai Ltd.
- Pelmec Thai Ltd.
- NMB Hi-Tech Bearings Ltd.
- NMB Precision Balls Ltd.
- Minebea Electronics (Thailand) Co., Ltd.
- Power Electronics of Minebea Co., Ltd.

China

- Minebea Electronics & Hi-Tech Components (Shanghai) Ltd.
 - Shanghai Factory
 - Xicen Factory

Singapore

- NMB Singapore Ltd.
 - Chai Chee Plant
 - Press Division
 - Tool & Die Division
- Pelmec Industries (Pte.) Ltd.

United States

- Hansen Corporation
- New Hampshire Ball Bearings, Inc.
 - Peterborough Plant
 - Laconia Plant
 - Chatsworth Plant

United Kingdom

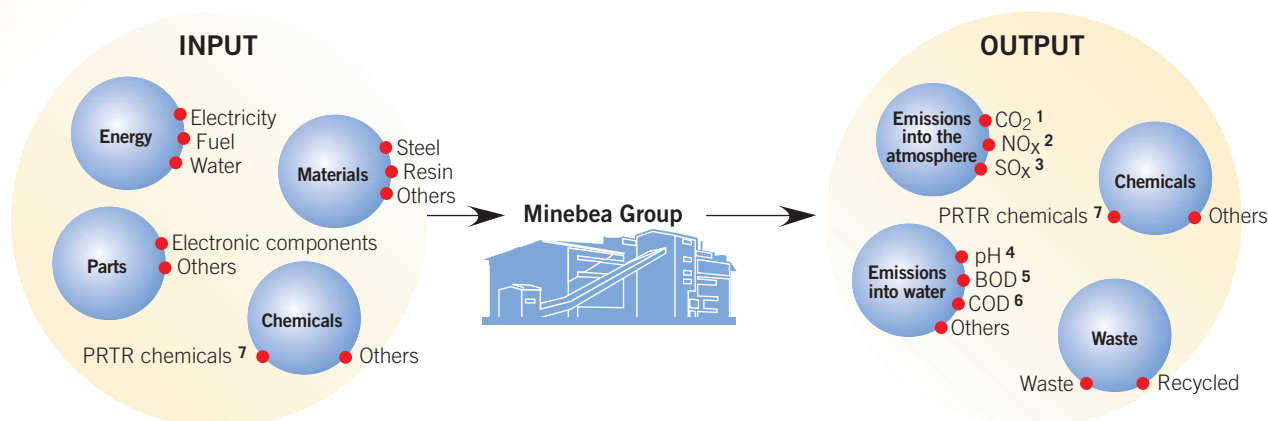
- NMB-Minebea UK Ltd.
 - Lincoln Plant
 - Skegness Plant
 - Inchinnan Plant

Germany

- Precision Motors Deutsche Minebea GmbH

The Minebea Group currently has plants and sales offices in 14 countries. Minebea acknowledges that the activities of these bases exert a burden on the global environment. This burden comprises the materials and energy that a company uses in production (“input”) and emissions released during production that impact the environment (“output”). The following is an input-output analysis of our plants in Asia—our principal mass production base—and Japan, where we have our parent plants, in fiscal 2002.

INPUT-OUTPUT FLOW



ENERGY CONSUMPTION AND RESULTING CO₂ EMISSIONS

	Unit	Japan	Thailand	China	Singapore
Consumption					
Electricity	10,000 kwh	5,978	55,448	10,030	7,296
Fuel, gas	Kiloliters	2,958	3,001	1,453	300
Water	1,000 m ³	320	3,700	420	283
Emissions					
CO ₂	Metric tons	33,806	211,632	51,755	27,849

HANDLING AND TRANSFER OF PRTR CHEMICALS (JAPAN)

PRTR Number	Chemical	Volume Handled	Emissions			Transfer		Plant
			Released into the Atmosphere	Released into Water	Landfill	Waste		
69	Hexavalent chromium compounds	1.5	0	0	0	0.3		Fujisawa Manufacturing Unit
144	Dichloropentafluoropropane (or HCFC-225)	15.0	14.8	0	0	0.2		Karuizawa Manufacturing Unit
232	Nickel compounds	0.6	0	0	0	0.2		Fujisawa Manufacturing Unit
232	Nickel compounds	14.1	0	0	0	1.5		Hamamatsu Manufacturing Unit
311	Manganese and manganese compounds	90.6	0	0	0	13.1		Hamamatsu Manufacturing Unit

Glossary

1. CO₂: Carbon dioxide

2. NO_x: Nitrogen oxides

3. SO_x: Sulfur oxides

Emissions of CO₂, NO_x and SO_x result from the burning of coal, oil, gasoline and other fuels.

4. pH: A solution's pH reading indicates whether it is alkaline or acidic. The pH range is from 0 to 14, with 7.0 being neutral. Anything above 7.0 is alkaline, anything below 7.0 is acidic.

5. BOD: Biochemical oxygen demand

The amount of oxygen required for the biochemical oxidation of organic solids in water. The higher the BOD reading, the greater the level of pollution. BOD is commonly used to monitor pollution in effluent discharged into rivers.

6. COD: Chemical oxygen demand

The amount of oxygen required for oxidation of organic solids in water to CO₂. COD readings can be obtained more quickly than BOD readings, but they are less reliable. COD is commonly used to monitor pollution in effluent discharged into oceans and lakes.

7. PRTR substances: Substances included in a Pollutant Release and Transfer Register

In Japan, the Law Concerning the Reporting, etc. of Release to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management requires companies to register and monitor the release and transfer of designated PRTR substances.

MINIMIZING WATER AND AIR POLLUTION

Concentrations in Water

Japan
Karuizawa Manufacturing Unit (Mg/liter)

	Legal Limit	Voluntary Limit	Maximum	Average
pH	5.8–8.6	6.0–8.0	7.9	7.7
COD	40	30	21.0	7.0
BOD	40	30	17.0	8.1
SS ^a	60	55	40.0	20.7
n-Hexane extractions ^a	5	5	2.9	<1.0

Hamamatsu Manufacturing Unit (Mg/liter)

	Legal Limit	Voluntary Limit	Maximum	Average
pH	5.8–8.6	6.0–7.0	7.4	7.2
COD	40	20	8.4	6.7
BOD	25	20	2.9	1.5
SS	40	25	5.8	2.2
n-Hexane extractions	5	5	1.1	<1.0

Fujisawa Manufacturing Unit (Mg/liter)

	Legal Limit	Voluntary Limit	Maximum	Average
pH	5.8–8.6	6.6–7.8	7.2	6.8
COD	60	30	28.0	20.0
BOD	60	30	21.0	15.0
SS	90	10	8.0	5.0
n-Hexane extractions	5	2	1.0	<1.0

Thailand
Bang Pa-in Plant (Mg/liter)

	Legal Limit	Voluntary Limit	Maximum	Average
pH	5.5–9.0	6.5–8.5	8.5	8.2
COD	120	80	24.0	17.2
BOD	20	18	5.0	1.8
SS	50	20	6.0	1.7
n-Hexane extractions	5	5	1.5	0.8

China
Shanghai Factory (Mg/liter)

	Legal Limit	Voluntary Limit	Maximum	Average
pH	6.0–9.0	7.0–8.0	8.0	7.6
COD	60	20	16.7	13.2
BOD	15	5	2.2	1.3
SS	70	10	5.0	3.0
n-Hexane extractions	3	1	1.0	0.7

Concentrations in Air

Japan
Karuizawa Manufacturing Unit
(Absorption 600-ton boiler)

	Unit	National Limit	Voluntary Limit	Maximum	Average
Particulates ¹⁰	g/m ³ N	0.3	0.25	0.019	0.014
NO _x	ppm	180	150	80	77
SO _x	m ³ N/H	1.2	1.0	0.35	0.31

Karuizawa Manufacturing Unit
(Absorption 310-ton boiler)

	Unit	National Limit	Voluntary Limit	Maximum	Average
Particulates	g/m ³ N	0.3	0.25	0.009	0.009
NO _x	ppm	180	150	75	65
SO _x	m ³ N/H	1.1	1.0	0.27	0.19

Hamamatsu Manufacturing Unit
(Absorption chiller heater)

	Unit	National Limit	Voluntary Limit	Maximum	Average
Particulates	g/m ³ N	0.3	0.2	—	<0.01
NO _x	ppm	180	100	65	61
SO _x	m ³ N/H	—	—	—	—

Fujisawa Manufacturing Unit
(Sectional hot water boiler)

	Unit	National Limit	Voluntary Limit	Maximum	Average
Particulates	g/m ³ N	0.3	0.15	—	<0.01
NO _x	ppm	150	80	77	69
SO _x	m ³ N/H	0.525	0.250	0.01	0.09

Glossary

8. SS: Suspended solids

This term refers to matter suspended or dissolved in water or wastewater. The higher the percentage, the greater the water's turbidity.

9. n-Hexane extractions

This term refers to the volume of oils and cleaning fluids extracted from water using the chemical n-Hexane. As used in this report, it denotes the volume of mineral oil extracted using n-Hexane.

10. Particulates

Particulates are microscopic solid matter contained in exhaust gas generated as a result of combustion, heating or chemical reaction.

WASTE

		(Tons)		
Plant		Reused or Recycled	Disposed of as Waste	Landfill
Japan	Karuizawa Manufacturing Unit	690	389	5
	Hamamatsu Manufacturing Unit	311	167	89
	Fujisawa Manufacturing Unit	855	632	79
	Omori Manufacturing Unit	133	49	88
	Minebea Onkyo Co., Ltd.	4	5	2
	NMB Electronics, Inc.	20	3	0
		2,013	1,245	263
Thailand		19,644	12,214	4,053
China		5,268	1,406	76
Singapore		5,364	1,269	1,070

This section focuses on Minebea's various environmental protection objectives, activities and targets. For detailed information and specific examples, please refer to the page(s) indicated in the right column.

Area	Objectives	Specific Activities/Achievements in Fiscal 2002	Targets	Page(s)
Products	Reduction or elimination of hazardous chemical substances in products	1. Switch to cadmium-free plastic materials (achieved) 2. Switch to lead-free cable insulation and plastic materials (ongoing) Exposed Other 3. Switch to lead-free solder (ongoing) 4. Eliminate hexavalent chromium (ongoing) Electronic components Automotive fasteners 5. Eliminate asbestos from electronic clutches and brakes (ongoing) 6. Switch to non-PVC coating materials for speaker boxes (commenced)	Achieve by March 2004 Achieve by December 2004 Achieve by June 2004 Achieve by December 2004 Achieve by June 2005 Achieve by March 2004 Achieve by January 2005	13–14
	Reduction of energy consumption/contribution to prevention of global warming	1. Contribute to environmental improvement by increasing precision grade of ball bearings 2. Develop and commercialize lighting devices for LCDs 3. Develop and commercialize backlight inverters		14
	Compatibility with "3R" criteria	1. Develop and commercialize high tension bolts		15
	Environmentally sound distribution	1. Simplify recycling of cardboard boxes 2. Use environment-friendly packing materials 3. Recycle polyethylene containers as fuel pellets for electric power generation		15
Plants	Rehabilitation of contaminated soil and groundwater	1. Resolve contamination caused by chlorinated organic solvents a. Purify groundwater (ongoing) (Karuizawa and Fujisawa Manufacturing Units and site of former Ichinoseki Factory) b. Replace contaminated soil (completed) (Omori Manufacturing Unit)	Observe the environmental laws and regulations of each country and voluntary limits	16–17
	Prevention of damage to the ozone layer	1. Eliminate specified CFCs and ethane as cleaning agents (completed in April 1993)	Switch to air conditioners that do not use ozone-depleting substances (ODSs) when installing new or replacing existing units	17
	Promotion of "3R" concept	1. Lower waste output from plants a. Install oil recovery equipment 2. Increase recycling of waste a. Improve storage areas for grinding swarf and promote briquetting b. Reduce perishable waste and promote composting 3. Reduce disposal as landfill a. Recycle sludge from wastewater treatment facilities	Reduce total waste output 15% from the fiscal 2002 level by March 2006	18

Area	Objectives	Specific Activities/Achievements in Fiscal 2002	Targets	Page(s)
	Prevention of water contamination	1. Comply with environmental laws and regulations in each country Japan: All plants have achieved limits stipulated by local laws and regulations and voluntary limits Thailand: All plants have achieved limits stipulated by local laws and regulations and voluntary limits China: All plants have achieved limits stipulated by local laws and regulations and voluntary limits	Observe the environmental laws and regulations in each country and voluntary limits	19
	Prevention of air pollution	1. Comply with environmental laws and regulations in each country Japan: All plants have exceeded levels stipulated by local laws and regulations	Observe the environmental laws and regulations in each country and voluntary limits	20
	Reduction of energy consumption/contribution to prevention of global warming	1. Support use of natural forms of power generation a. Join Tohoku Green Power Fund 2. Eliminate redundant equipment a. Reduce number of oil mist collectors 3. Publicize the achievements of plants outside Japan/Asia a. U.S. Group company's receipt of U.S. EPA award and efforts to reduce consumption of energy and raw materials	Lower energy consumption (per unit of production) 1% annually	20, 21
	Establishment of environmental patrol programs	1. Expand environmental management program, implement environmental patrols covering plants as well as surrounding areas	Implement/continue/improve regular patrols	21
Education	Education for new recruits	1. Implement environmental education programs for new recruits	Ongoing	22
	In-house training	1. Implement training program for in-house environmental auditors	Ongoing	22
	Basic employee education	1. Regular environmental education for all employees	Ongoing	22
	Emergency response training	1. Implement environmental emergency drills	Ongoing	22
Communications	Disclosure of information	1. Present information on environmental efforts at Minebea Web site	Publish annual environmental report	23
	Communication with local communities	1. Organize environment-themed art contest for children and teens (Thailand)	Maintain communications with local communities	23
Community Activities	Clean-up programs	1. Organize clean-up programs around plant sites	Ongoing	24
	Greening	1. Implement/participate in tree-planting programs a. Tree-planting program (Thailand) b. Sapling donation and tree-planting programs (China)	Ongoing	24
	Support for community environmental programs	1. Extend support to Fujisawa Shinbayashi Park Conservation Association	Support local environmental protection efforts	24
	Environmental protection funds	1. Shanghai-Minebea Lake Daishan-hu Environmental Protection Fund a. Amount: Rmb 11.0 million (approx. US\$1.3 million) b. Use of fund to support tree-planting programs	Use fund to support local environmental efforts	25

ENVIRONMENTAL ACCOUNTING SYSTEM

Minebea has introduced environmental accounting to facilitate a qualitative assessment of its environmental efforts. This move reflects our belief that an accurate analysis of these efforts using economic indicators will ensure our ability to continue playing a role in environmental conservation and contribute to a tangible reduction of the burden it places on the environment. Our environmental accounting system is based on *Environmental Accounting Guidelines* (Fiscal 2002 Version), published by Japan's Ministry of the Environment. Environmental protection costs incurred by overseas production bases—which account for more than 90% of total Group production—are also accounted for using these guidelines. This system is still new and is not yet perfect. We will modify it as necessary to facilitate the disclosure of accurate information that will support effective environmental management.

SCOPE

● Period covered

April 1, 2002–March 31, 2003

● Scope of calculations

Japan

Minebea Co., Ltd.

Karuizawa Manufacturing Unit (Karuizawa, Matsuida and Saku factories)

Fujisawa Manufacturing Unit

Omori Manufacturing Unit

Hamamatsu Manufacturing Unit and its R&D Center (Minebea Electronics Co., Ltd.)

Minebea Onkyo Co., Ltd. (relocated to Hamamatsu Manufacturing Unit in June 2003)

NMB Electro Precision, Inc.

Asia

Thailand—All Minebea Group plants

China—All Minebea Group plants

Singapore—All Minebea Group plants

COSTS OF ENVIRONMENTAL PROTECTION ACTIVITIES

		(Thousands of yen)	
Category	Description	Investment	Expenses
1. Business area costs (Environmental protection costs to minimize the environmental burden resulting from manufacturing and service activities within the business area)	See specific entries for a, b and c below.	¥1,213,186	¥2,613,017
Breakdown			
a. Pollution prevention costs	Costs related to the installation, disposal, maintenance and management of facilities to prevent water and air pollution, others	800,845	881,151
b. Environmental protection costs	Installation, depreciation, operating and maintenance costs for ODS-free water-based cleaning facilities, others	345,739	1,433,246
c. Resource recycling costs	Waste disposal and recycling equipment, costs, others	66,602	298,620
2. Upstream/downstream costs (Environmental protection costs to minimize the burden of key upstream and downstream operations)	Costs related to the installation of analyzers, analysis of materials as part of the Green Procurement Program, printing and revenue stamp costs for contracts with suppliers, others	50,058	41,651
3. Administration costs (Environmental protection costs stemming from administrative activities)	Personnel, maintenance and management costs for environmental management system, others	0	235,349
4. R&D costs (Environmental protection costs stemming from R&D activities)	Costs related to the research and development of ODS-free water-based cleaning facilities, others	0	52,632
5. Community activity costs (Environmental protection costs stemming from community activities)	Costs related to greening programs, landscape preservation, others	0	60,519
6. Environmental remediation costs (Costs incurred for environmental remediation efforts)	Costs related to soil replacement and the operation, maintenance and depreciation of water-based cleaning facilities, others	0	50,529
Other costs	Costs related to the creation of a system for managing chemical substances	0	46,758
Total		¥1,263,244	¥3,100,455

Exchange rates used: 1 baht=¥2.7; 1 yuan=¥14.2; \$1.00=¥68

Minebea's Green Procurement Program focuses on the purchase of raw materials and parts from ecologically sound suppliers. With the adoption of directives such as RoHS¹, WEEE² and ELV³, manufacturers are stepping up efforts to eliminate or reduce the use of hazardous substances, particularly in electronic equipment and automobiles. In this environment, the importance of green purchasing is expected to increase.

ELIMINATE/REGULATE THE USE OF HAZARDOUS SUBSTANCES

Minebea's Green Procurement Guidelines set forth strict criteria to regulate hazardous substances in products purchased from suppliers. Suppliers meeting these criteria are eligible for supplier contracts. At present, Minebea has approximately 1,500 contracted suppliers.

Chemical Substances to Be Banned in Products from Suppliers

(As of June 2003)

1. Heavy metals

- a. Cadmium and cadmium compounds
- b. Lead and lead compounds
- c. Mercury and mercury compounds
- d. Hexavalent chromium compounds

2. Organic chlorinated compounds

- Polychlorinated biphenyls (PCB)
- Polychlorinated naphthalenes (PCN)
- Chlorinated paraffins (CP)
- Mirex

3. Organic brominated compounds

- Polybrominated biphenyl (PBB)
- Polybrominated diphenyl ether (PBDE)

4. Organic tin compounds

- Tributyl tin compounds
- Triphenyl tin compounds

5. Asbestos

6. Azo compounds

7. Formaldehyde

Note: Dates bans will go into effect vary according to substance.

VENDOR AUDITS

Minebea conducts environmental audits of all its suppliers to evaluate compliance with its green procurement criteria. These audits involve inspecting environmental management systems, business processes and production process management, awarding points in each category and providing guidance where necessary.



Environmental audit procedure

Green Procurement Database

The Green Procurement Database enables Minebea Group companies to share information, thereby assisting green procurement efforts Groupwide.

- Green Procurement Guidelines
- Chemical substance control regulations
- Supplier audit updates



Glossary

1. RoHS (Restriction of Hazardous Substances) Directive

A European Union (EU) directive banning the use of lead, mercury, cadmium, hexavalent chromium, PBB and PBDE in electrical and electronic equipment brought to market after July 1, 2006.

2. WEEE Directive (Directive on Waste Electrical and Electronic Equipment)

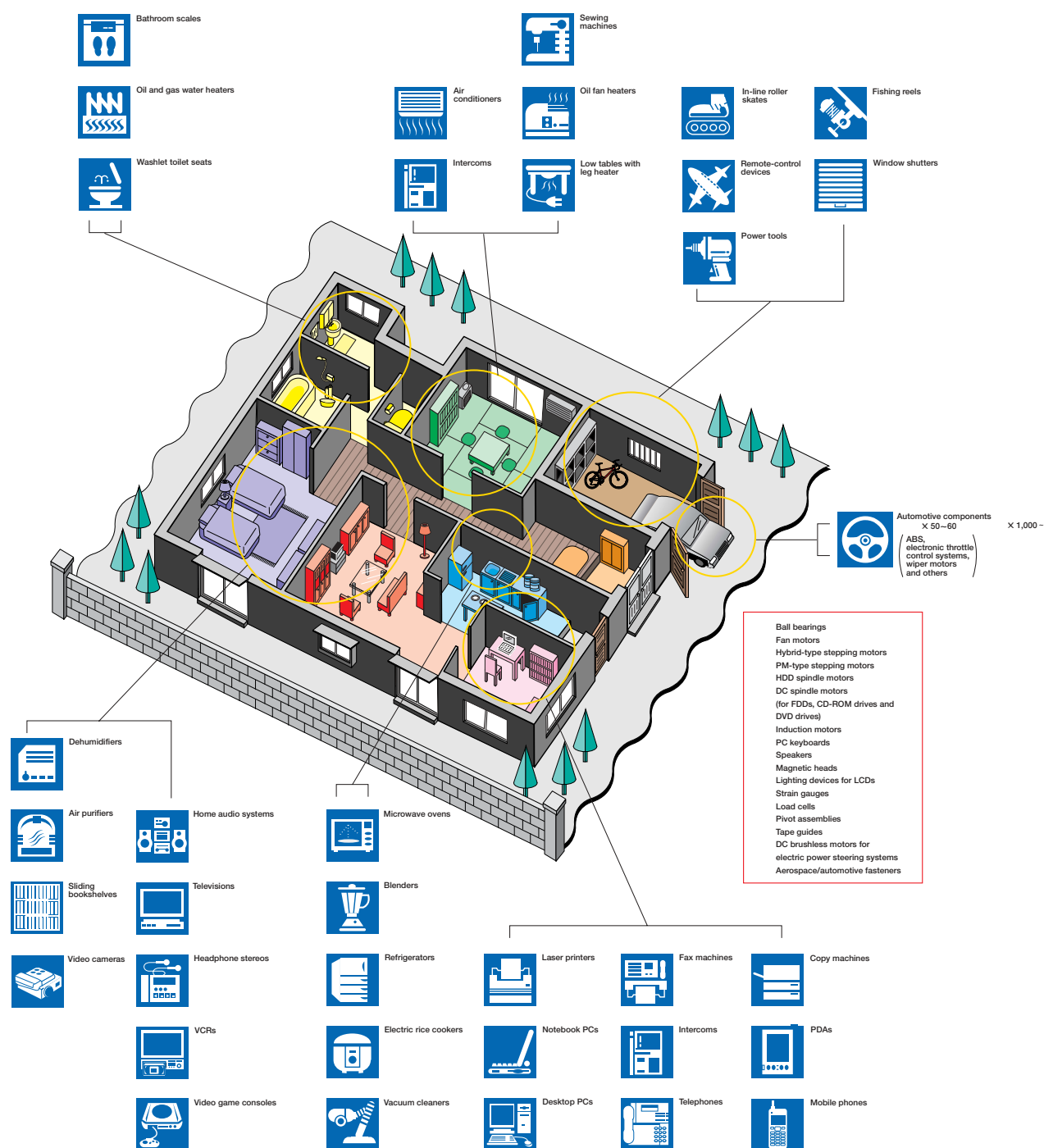
An EU directive on the responsibilities of individual manufacturers to collect and recycle waste electric and electronic equipment.

3. ELV (End-of-Life Vehicles) Directive

An EU directive aimed at reducing environmental impact and improving the recyclability of end-of-life vehicles by banning the use therein of lead, mercury, cadmium and hexavalent chromium. (Certain components and the retroactivity of this directive are still under consideration.)

Minebea ball bearings, motors and electronic devices and components are used in a broad range of applications around the home, as well as in aerospace and automotive applications. A minimum of 100 miniature and small-sized ball bearings are used in an average household, with some homes containing as many as 200. In a ball bearing, the rolling of the balls minimizes friction, ensuring smooth rotation—an essential requirement for precision equipment. With the increasing importance of information and telecommunications technologies, ball bearings will continue to play a crucial role in office equipment and household electrical appliances, contributing to efforts to develop more compact models and minimize energy requirements.

MINEBEA PRODUCTS: ESSENTIAL TO MODERN LIFESTYLES



■ REDUCTION OR ELIMINATION OF HAZARDOUS CHEMICAL SUBSTANCES IN PRODUCTS

► Switch to Lead-Free Solder

Lead has traditionally been a standard ingredient in solder used to join electric and electronic devices and components, as well as in functional plastic materials and pigments. In recent years, lead from scrapped household electrical appliances and automobiles has attracted attention as a source of soil and groundwater contamination.

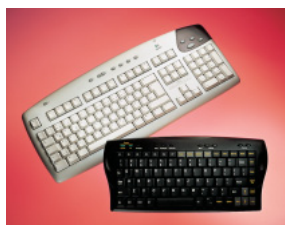
Recognizing the environmental and social implications of lead-based solder, in 1998 Minebea began working toward the use of lead-free varieties. By December 2004, the Group aims to switch completely to lead-free solder, cable insulation and plastic materials.



HDD spindle motors



Hybrid-type stepping motors



PC keyboards



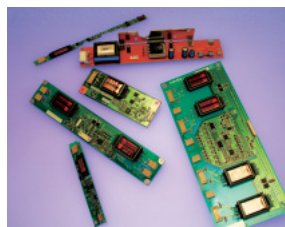
MOD drive subassemblies



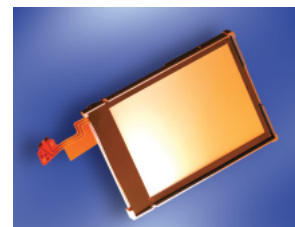
PM-type stepping motors



Fan motors



Backlight inverters



Lighting devices for LCDs

► Switch to Cadmium-Free Plastic Materials

Cadmium is used as a stabilizing agent in plastic materials, as well as in pigments and dyes. Recent years have seen a tightening of regulations on the use of cadmium, particularly by the EU. Increasing attention is being given to its use in materials for applications that involve frequent human exposure, such as cable insulation, cable ties, switches on remote controls and coating resins used on electronic components. Decisive measures enabled Minebea to terminate the use of cadmium-based plastic materials.

► Eliminate Hexavalent Chromium

Stainless steel and fasteners for household electrical appliances and automobiles are often coated with anticorrosion coatings called chromates. Chromates contain hexavalent chromium, which is considered a hazardous chemical substance and is banned under the EU's ELV, RoHS and WEEE directives. (See glossary on page 11.) Minebea has targeted the elimination of hexavalent chromium from its electronic devices by December 2004 and automotive fasteners by June 2005.

► Eliminate Asbestos from Electronic Clutches and Brakes

Electronic clutches transmit or intercept rotational force from an engine or motor, while electronic brakes control, slow and stop it. Rotational force is transmitted, intercepted, controlled, slowed or stopped via a lining of friction material. Until recently, one of the most commonly used friction materials has been asbestos, a known carcinogen. Minebea has set a target of March 2004 for switching to asbestos-free friction materials in its electronic clutches and brakes.



Electronic clutches and brakes

► Switch to Non-PVC Materials for Coating Speaker Boxes

Until recently, PVC film has been one of the most popular coatings for speaker boxes. When end-of-life PVC film-coated speaker boxes are incinerated, the PVC film releases dioxin into the atmosphere. Accordingly, Minebea has begun the process of switching to olefin resins and other non-PVC coatings and has set a target of January 2005 for the switch to be achieved.



Speaker boxes

■ REDUCTION OF ENERGY CONSUMPTION/CONTRIBUTION TO PREVENTION OF GLOBAL WARMING

► Ball Bearings

A ball bearing's precision grade depends on the raceway roundness of its inner and outer rings, sphericity of its balls and quality of the materials used in its various parts. Minebea's constant efforts to improve its performance on all fronts has enabled it to set the global standard for ball bearing precision.

Minebea also develops the lubricating greases and oils it uses in the production of its ball bearings, contributing to higher performance, longer life and lower energy consumption.



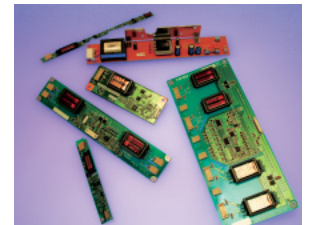
Miniature and small-sized ball bearings



RO bearings

► Backlight Inverters

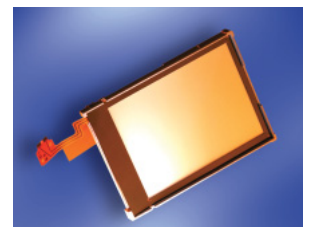
Backlight inverters are essential components of LCD units for PCs. Minebea's backlight inverters use control ICs and leakage transformers developed in-house, significantly lowering energy consumption and improving reliability.



Backlight inverters

► Lighting Devices for LCDs

Minebea manufactures lighting devices for LCDs used in cellular phones, portable game machines, PDAs¹ and other small mobile devices. Our outstanding design and development capabilities, together with our high-precision injection molding technology—which uses molds manufactured in-house—are enabling us to develop models that use less energy and are considerably smaller and lighter than conventional devices.



Lighting devices for LCDs

Glossary

1. PDA (Personal digital assistant)

PDAs are handheld personal data terminals.

COMPATIBILITY WITH “3R” CRITERIA

High Tension Bolts

Minebea has developed high tension bolts (tension grade: 12.9 or higher²) using special materials that greatly improve delayed fracture resistance, thereby facilitating downsizing. This achievement has contributed to the development of more compact and lighter connecting rods and other engine components, reducing inertia and increasing engine output.



High tension bolts

Glossary

2. 12.9 Tension Grade

In Japanese Industrial Standards (JIS) standard B 1051, pertaining to the mechanical properties of fasteners, 12.9 is the highest grade for bolt tension.

ENVIRONMENTALLY SOUND DISTRIBUTION

Environment-Friendly Packaging

1. Recycle cardboard boxes

Minebea is simplifying the recycling of cardboard boxes by

- using paper packing tape and
- eliminating the use of large metal staples.

2. Select environment-friendly packaging materials

Minebea primarily uses the following selected, environment-friendly packaging materials:

- cardboard
- molded pulp
- biodegradable plastic

3. Eliminate polystyrene foam

In light of the global shortage of landfill sites, Minebea has stopped using polystyrene foam packaging materials in its operations worldwide.

4. Promote “3R” concept

Minebea is recycling polyethylene containers as fuel pellets for electric power generation.



Packaging materials

Energy-Efficient Transport

1. To reduce loading and unloading during transport and the distance products are transported, Minebea is increasing direct-from-factory shipping to customers' sites or specified warehouses. To reduce the total distance of truck transport in Japan and other countries, we are switching from truck freight to ocean transport from ports situated close to customers.

2. We are also stepping up use of railway container shipping. In western Japan, in particular, we take advantage of both modes to ship to customers.

Like all other industrial concerns, Minebea engages in manufacturing activities that exert a significant impact on the environment. We acknowledge this fact and are pursuing a variety of measures to protect the environment in and around our plants. These include measures aimed at rehabilitating contaminated plant sites and minimizing the burden of current manufacturing activities

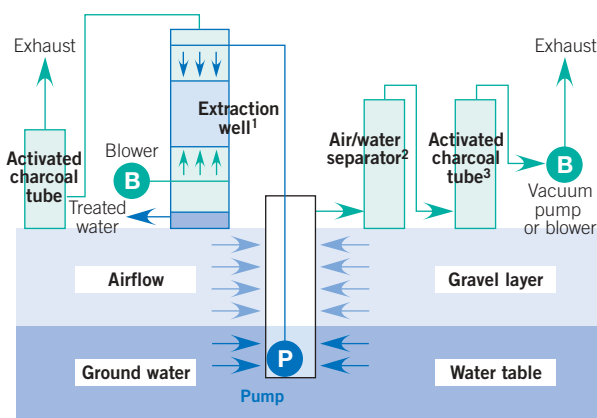
REHABILITATION OF CONTAMINATED SOIL AND GROUNDWATER

Cleanup of Contamination from Organic Chlorinated Solvents

The superb cleaning capabilities of tetrachloroethylene, trichloroethylene and other organic chlorinated solvents supported their widespread, long-term use in cleaning processes for precision components, PCs and electronic components. However, because these solvents are heavier than either water or air, leakage from facilities and containers—in the form of liquid and vapor—has resulted in significant accumulations in soil and groundwater.

Because it had previously used organic chlorinated solvents in its manufacturing processes, Minebea conducted voluntary inspections of its

plants in Japan. These inspections confirmed contamination at the Karuizawa Manufacturing Unit, Fujisawa Manufacturing Unit, the site of the former Ichinoseki Factory and the Omori Manufacturing Unit. Minebea promptly informed local authorities of the results of its inspections and, in line with directives issued thereof, implemented cleanup measures. The principal methods in use here are dual extraction and air stripping. Minebea has also implemented voluntary inspections and appropriate cleanup measures at its overseas plant as required.



Dual extraction and air stripping system, a pump system that removes contaminated soil vapor and groundwater



Soil and groundwater purification system at the Fujisawa Manufacturing Unit

Glossary

1. Extraction well

Extracted groundwater is drawn up and discharged into the well from the top, while air is driven up from the bottom, stripping solvent contaminants from the groundwater.

2. Air/water separator

This device is used to separate the exhaust into vapor and water.

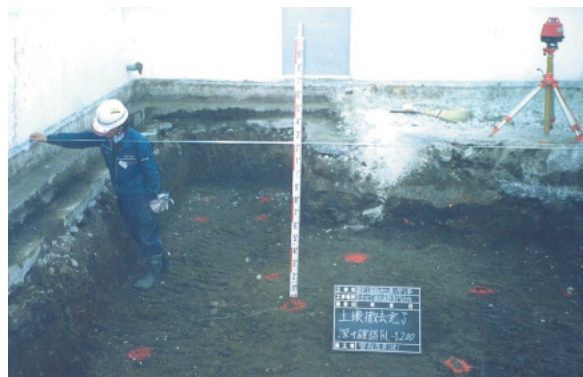
3. Activated charcoal tube

The airflow is passed through a tube of activated charcoal, which adsorbs the contaminants.

► Soil Replacement at Former Color Plating Facility (Omori Manufacturing Unit)

Owing to the termination of its color plating operations, in November 2000 the Omori Manufacturing Unit closed its color plating facility. Because of the nature of the facility's operations, Minebea conducted a voluntary inspection of the site after its closure. This inspection revealed concentrations of cyan and hexavalent chromium in the soil that exceeded domestic standards.

Minebea promptly reported the results of its inspection to the Ota Ward Office, in Tokyo, where the Omori Manufacturing Unit is located, and formulated a soil decontaminating program for immediate implementation. This involved removing the top layer of soil from the facility site to a depth of one meter and replacing it with new soil. Tests in May 2002 confirmed the absence of contaminants in the soil. This was reported to the Ota Ward Office and the program declared complete.



Removal of contaminated soil

■ OZONE PROTECTION EFFORTS

► Elimination of Specified CFCs and Ethane as Cleaning Agents

In July 1991, Minebea organized the Anti-CFC Committee with the aim of phasing out the use of specified CFCs and ethane as cleaning agents. In 1993, Minebea became the first bearing manufacturer in the world to completely eliminate specified CFCs and ethane as cleaning agents from all production processes. These and other efforts to protect the ozone layer have been recognized three times with stratospheric ozone protection awards from the U.S. EPA⁴.

Glossary

4. U.S. EPA: U.S. Environmental Protection Agency

Established in December 1970, the U.S. EPA is an independent agency that develops and enforces environmental regulations, performs environmental research, sponsors pollution prevention efforts, advises the president and provides support for conservation-related councils.



EPA Stratospheric Ozone Protection Award plaque

- 1993: Minebea's Thai subsidiaries and the parent company receive the U.S. EPA's Stratospheric Ozone Protection Award.
- 1995: Goro Ogino, then President of Minebea, receives the Stratospheric Ozone Protection Award for individuals.
- 1997: The Minebea Group is selected from among the previous award winners from the previous decade to receive the Best-of-the-Best Stratospheric Ozone Protection Award.

■ LOWER WASTE OUTPUT/“3R” ACTIVITIES

▶ Install Oil Recovery Equipment (Thailand)

Minebea's plants in Thailand have introduced oil recovery equipment on cutting lines. All cutting oil recovered—approximately 50,000 liters annually—is reused. This is an excellent example of how efforts to use resources responsibly can also contribute to lower manufacturing costs.



Oil recovery equipment

▶ Recycle Sludge from Wastewater Treatment Facilities (Hamamatsu Manufacturing Unit)

Sludge from the Hamamatsu Manufacturing Unit's wastewater treatment facility (generated primarily through ferrite production) is dried by an intermediate waste processing firm and handed over to a recycling firm. This firm transforms the dried sludge material into a variety of materials for construction and civil engineering using a technique called “Soil Best.”



Recycle sludge from wastewater treatment facilities (Hamamatsu Manufacturing Unit)

▶ Reduce Perishable Waste and Promote Composting (Karuizawa Manufacturing Unit, Hamamatsu Manufacturing Unit)

In addition to waste generated through manufacturing activities, all Minebea Group plants also produce significant volumes of perishable waste from staff cafeterias. Until recently, the Hamamatsu Manufacturing Unit generated a monthly average of more than one ton of perishable waste. With the installation of a perishable waste processor, however, this has decreased by three quarters (primary processing). Waste from the processor is collected by a fertilizer manufacturer for composting and transformation into fertilizer (secondary processing) and returned to the plant for use on plant grounds.



Perishable waste processor (Hamamatsu Manufacturing Unit)

▶ Improve Storage Areas for Grinding Swarf (Omori Manufacturing Unit)

Grinding swarf, generated through the cutting of metal materials, is a particular nuisance as it tends to adsorb cutting oil, thereby soiling the area around it. The Omori Manufacturing Unit has sought to remedy this problem by installing two machines—one each for steel and aluminum—that pulverizes the sludge and compacts it into briquets. This move has sharply reduced the frequency with which sludge must be collected from the storage area, as well as facilitated the extraction of cutting oil. The briquets are easy to handle and have value as a source of metal. These machines have also been installed at plants in Thailand.



New grinding swarf storage area (Omori Manufacturing Unit)

■ PREVENT WATER CONTAMINATION

► Wastewater Processing in Japan (Fujisawa Manufacturing Unit)

The Fujisawa Manufacturing Unit—which dates back to 1921, when it's predecessor moved to the current site—engages in integrated production of fasteners for automotive and aerospace applications. The plant has long boasted a thorough and effective processing capability for wastewater generated through its manufacturing activities. In April 2002, it introduced a new, comprehensive wastewater processing facility with the aim of reducing the burden it places on a nearby river. In July 2002, the plant received an award from the Kanagawa Global Environment Conservation Promotion Council.

	Legal Limit	Voluntary Limit	Maximum	Average
(Mg/liter)				
pH	5.8-8.6	6.6-7.8	7.2	6.8
COD	60	30	28.0	20.0
BOD	60	30	21.0	15.0
SS	90	10	8.0	5.0
n-Hexane extractions	5	2	1.0	<1.0



Wastewater processing facilities
(Fujisawa Manufacturing Unit)

► Wastewater Processing in China (Shanghai Factory)

The Shanghai Factory is situated in a scenic area near Lake Daishan-hu, a famous tourist spot as well as the source of Shanghai's drinking water. To protect the quality of the water in the lake, Minebea has installed advanced wastewater treatment facilities with a round-the-clock automatic monitoring system.

	Legal Limit	Voluntary Limit	Maximum	Average
(Mg/liter)				
pH	6.0-9.0	7.0-8.0	8.0	7.6
COD	60	20	16.7	13.2
BOD	15	5	2.2	1.3
SS	70	10	5.0	3.0
n-Hexane extractions	3	1	1.0	0.7



Wastewater processing facilities
(Shanghai Factory)

► Wastewater Processing in Thailand

Much of Thailand remains largely agrarian, with rice the principal crop. Minebea has equipped its Bang Pa-in, Ayutthaya and Lop Buri plants with high-performance wastewater treatment facilities with the aim of protecting the quality of water in and around its plants and of serving as a model for other foreign companies establishing plants in the kingdom.

	Legal Limit	Voluntary Limit	Maximum	Average
(Mg/liter)				
pH	5.5-9.0	6.5-8.5	8.5	8.2
COD	120	80	24.0	17.2
BOD	20	18	5.0	1.8
SS	50	20	6.0	1.7
n-Hexane extractions	5	5	1.5	0.8



Wastewater processing facilities
(Bang Pa-in Plant)

■ PREVENTION OF AIR POLLUTION

▶ Exhaust Recovery System for Cleaning Facilities (Karuizawa Manufacturing Unit)

Cleaning facilities that use solvents to remove particulates from air emissions emit exhaust that contains solvent vapors. Such exhaust is a cause of contamination and global warming if released directly into the atmosphere. At the Karuizawa Manufacturing Unit, Minebea has installed exhaust recovery systems in all cleaning facilities to minimize emissions of solvent vapors.



Exhaust recovery system installed at Karuizawa Manufacturing Unit

▶ Measure Solvent Vapor Concentrations (Karuizawa Manufacturing Unit)

At the Karuizawa and Matsuida factories, Minebea regularly measures concentrations of solvent vapor in exhaust from cleaning facilities. This step reflects Minebea's recognition that while solvent vapors emissions are not covered by environmental legislation, decomposition or chemical reactions in the atmosphere may produce hazardous substances.



Measurement of solvent vapor concentrations (Matsuida Factory)

■ REDUCTION OF ENERGY CONSUMPTION/CONTRIBUTION TO PREVENTION OF GLOBAL WARMING

▶ Procure Green Energy (NMB Electro Precision, Inc.)

NMB Electro Precision, based in Sendai, Miyagi, has joined the Tohoku Green Power Fund, the objective of which is to support efforts to promote natural forms of power generation. This fund, which acts through the Industrial Vitalization Center for Tohoku, assists companies in the Tohoku region to install new solar and wind power facilities.



Windmills

▶ Reduce Number of Oil Mist Collectors (Singapore)

Pelmec Industries (Pte.) Ltd. has taken steps to increase the seal of its cutting machines, thereby significantly reducing the amount of oil mist released into the air by these machines. This has enabled the company to reduce the number of oil mist collectors it uses to two, from five, thereby lowering energy and oil consumption.



Oil mist collectors (before)



Oil mist collectors (after)

■ VOLUNTARY EFFORTS

► Environmental Patrols



Environmental patrol (Hamamatsu Manufacturing Unit)

Minebea is reinforcing voluntary environmental monitoring by implementing regular, exhaustive patrols at all of its plants. These patrols ensure, among others, that hazardous chemical substances are properly stored, energy is not wasted, environmental management systems function effectively and plants do not pollute surrounding areas.

■ ACHIEVEMENTS OF PLANTS OUTSIDE JAPAN/ASIA

► U.S. Group Company Wins EPA Award

In April 2003, the HiTech Division of New Hampshire Ball Bearings, Inc., a manufacturer of ball bearings for aerospace applications, received an Environmental Merit Award from the U.S. EPA. The award was given in recognition of the company's success in the EPA's National Environmental Performance Track program. Since joining the program in December 2000, facilities involved have collectively reduced energy consumption by 1.7 million kilowatts and materials used by more than 27,000 pounds.



U.S. EPA Environmental Merit Award ceremony

With the aim of encouraging involvement in environmental protection efforts at home and in the community, as well as at work, Minebea provides a variety of environmental education programs for its employees. By raising the environmental awareness of its employees, Minebea hopes to contribute to greater general understanding of environmental issues—an important step toward ensuring a healthy future for our planet.

► Educational Programs for New Recruits



Initial training for new recruits from Minebea Group companies

As part of their initial training, new recruits attend lectures on Minebea's Environmental Protection Principle, environmental management system and environmental protection efforts. After completing initial training, recruits must prepare reports on specific topics covered in these lectures, a task that demands they further their understanding, as employees, of Minebea's environmental protection efforts.

► Publication of Environmental Newsletter (Hamamatsu Manufacturing Unit)

Raising environmental awareness and interest in protection efforts is a challenging task. Understanding the importance of having effective materials on hand, in January 2000 the Hamamatsu Manufacturing Unit began publishing its own in-house environmental newsletter. As of the end of March 2003, 38 issues of the newsletter had been published.



In-house environmental newsletter (Hamamatsu Manufacturing Unit)

► Training Program for In-House Environmental Auditors

Minebea's ISO 14001-based environmental management system includes obligatory checks by in-house auditors to ensure the effective functioning of the system itself. Environmental auditors must be able to evaluate objectively and fairly. To this end, Minebea provides specialized training programs for employees that are instructed by accredited external auditors. As of the fiscal 2003 year-end, Minebea had 105 qualified in-house environmental auditors.



March 2003 training program for in-house environmental auditors

► Environmental Emergency Drills

In Japan, experts expect a major earthquake to hit the Tokai area (from Tokyo to Nagoya) sometime in the near future. At both its domestic and overseas plants, Minebea conducts extensive emergency earthquake, fire and oil spill drills. These drills underscore Minebea's firm belief that minimizing damage from such occurrences is the best way to reduce their impact on the environment.



Environmental emergency drill (Karuizawa Manufacturing Unit)

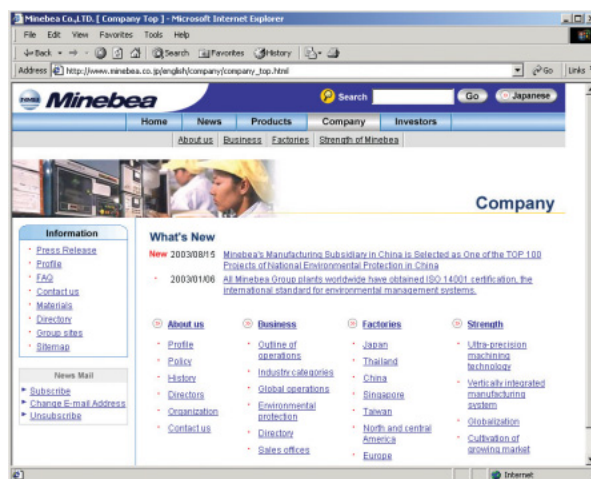
The dedication of one company is simply not enough to protect the global environment. Accordingly, a key component of Minebea's environmental protection efforts is to publicize them through communications activities targeted at a broad audience, including politicians and elected officials, communities, customers and suppliers. By encouraging the interest and cooperation of others, Minebea strives to enhance its contribution to the greater effort.

► Present Information on Environmental Efforts at the Minebea Web Site

The Minebea Web site features information on current environmental protection efforts, as well as the Environmental Protection Principle and a history of efforts to date. To access this information in English, please go to the following page:

<http://www.minebea.co.jp/english/company/business/environment/environment1.html>

For inquiries and comments on Minebea's environmental efforts, please see the back cover of this report.



► Environment-Themed Art Contest for Children (Thailand)

As part of its celebrations for the 20th anniversary of its Thai operation and with the aim of encouraging greater awareness of environmental issues among Thai children and teens, Minebea organized an environment-themed art contest for primary, secondary and high school pupils in Ayutthaya and Lop Buri provinces. The contest attracted approximately 700 submissions. First, second and third prizes (scholarships) were awarded for the three levels. The artwork featured on the cover of the 2003 Minebea Group Environmental Report are the first prize-winning submissions from each level.



First Prize, Secondary School Level

Mr. Pirach Charoentreepeach (age: 14)
Bang Sai School



First Prize, Primary School Level

Miss Wanpawee Sueb-yubol (age: 11)
Anuban Pranakorn Sri Ayutthaya School



First Prize, High School Level

Mr. Chai ya chet Kaew-wan (age: 18)
Bang Sai School

Minebea recognizes that its success depends on its ability to gain the understanding and trust of the communities in which it operates. Accordingly, we encourage Minebea employees to recognize their responsibilities not only as part of the Company, but also as citizens of the earth, to play an active role in environmental protection efforts designed to benefit local communities.

► Clean-Up Programs Around Plant Sites

With the aim of contributing to the health and beauty of the communities in which Minebea operates, employees at plants worldwide participate in local clean-up programs around plant sites. As an

example, the entire staff of the Fujisawa Manufacturing Unit in Japan takes part in a thrice-annual clean-up program established by the plant with the goal of maintaining the beauty of the plant's natural green setting.



Clean-up program along commuter route to Karuizawa Manufacturing Unit



Clean-up program, Fujisawa Manufacturing Unit vicinity

► Tree-Planting Program in Thailand

Minebea's Thai plants participated in a program to plant 13,000 trees on Khao Hin Son mountain.

► Support for Fujisawa Shinbayashi Park Conservation Association (Fujisawa Manufacturing Unit)

Shinbayashi Park, adjacent to Minebea's Fujisawa Manufacturing Unit, is one of only a few natural parks in the city of Fujisawa. Featuring a variety of special zones and a rainforest area and dotted with traditional old homes, the park boasts a typically Japanese setting and a wide range of seasonal trees, grasses and flowers. As a member of the Fujisawa Shinbayashi Park Conservation Association, Minebea's Fujisawa Manufacturing Unit provides support for efforts to preserve this beautiful park.



Minebea employees planting trees



Shinbayashi Park, Fujisawa

► Shanghai–Minebea Lake Daishan-hu Environmental Protection Fund

In April 1996, Minebea Electronics & Hi-Tech Components (Shanghai) Ltd. established the Shanghai–Minebea Lake Daishan-hu Environmental Protection Fund with the aim of helping preserve the quality of the water in nearby Lake Daishan-hu.

As of June 2003, the fund stood at 11.0 million yuan (approximately US\$1.3 million). To date, the fund has assisted a variety of efforts, including those listed at the top of the right column:



Result of fund-sponsored greening program

- installation of chemical toilets in approximately 4,000 farmhouses adjacent to the lake;
- building of green belts along the highway in front of the company and in and around its plants;
- cleanup of Lake Daishan-hu and the nearby highway; and
- donation of saplings to the Shanghai Sapling Center. (Minebea President Tsugio Yamamoto and administrators of the fund participated in the donation ceremony.)



Minebea President Tsugio Yamamoto at a ceremony to commemorate increasing the amount of the Shanghai–Minebea Lake Daishan-hu Environmental Protection Fund



Sapling donation ceremony at the Shanghai Sapling Center

► Minebea Electronics & Hi-Tech Components (Shanghai)'s Xicen Factory Selected Under China's Top 100 Projects of National Environmental Protection Program

On August 4, 2003, Minebea Electronics & Hi-Tech Components (Shanghai)'s Xicen Factory was selected by the State Environmental Protection Administration of China under the country's Top 100 Projects of National Environmental Protection program. According to the Administration, the Xicen Factory ranked fourth overall and first among Japanese companies of the 77 companies nationwide included in the Top 100 Projects of National Environmental Protection. This is indicated by the last three digits in the number printed on Minebea's certificate (GHJ2003004).

In June 2003, the Shanghai Environmental Protection Bureau selected Minebea Electronics & Hi-Tech Components (Shanghai) as one of eight exemplary companies committed to environmental protection in Shanghai. Minebea views this selection by the State Environmental Protection Bureau of the Central Government of China as evidence of the high regard in which the company is held by the Chinese government for its environmental protection efforts.



Shanghai Factory, Minebea Electronics & Hi-Tech Components (Shanghai)

Top 100 Projects of National Environmental Protection Program

Organized by the State Environmental Protection Bureau of the Central Government of China, the Top 100 Projects of National Environmental Protection program selects and grants awards to the 100 most environment-friendly facilities constructed in the country between January 1997 and August 2002.

In Shanghai, the Shanghai Environmental Protection Bureau recommended five projects to the State Environmental Protection Administration of China, including facilities of Minebea Electronics & Hi-Tech Components (Shanghai). The five were selected from among approximately 10,000 construction projects within the jurisdiction of the city during the specified period on the basis of compliance with environmental protection bylaws, the inclusion of environmental awareness in project plans and actual environmental preservation activities.



Xicen Factory, Minebea Electronics & Hi-Tech Components (Shanghai)



Top 100 Projects of National Environmental Protection certificate presented to the Xicen Factory (Certification number: GHJ2003004)



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Environmental Management Office, Karuizawa Manufacturing Unit,
4106-73, Oaza Miyota, Miyota-machi, Kitasaku-gun, Nagano 389-0293
Tel: 81-267-31-1378
Fax: 81-267-31-1347

Additional information on Minebea's environmental efforts is available in English at:

<http://www.minebea.co.jp/english/company/business/environment/environment1.html>



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