

Details & Data

Environmental Report

- This report aims to inform our stakeholders in straightforward language of JTEKT's concept and activities surrounding CSR.
- For FY2014, we have made major changes to the format of the report to make it easier to comprehend, dividing it into a Message (leaflet) and a full online report combining both the Message and the Details & Data section.
- The Details & Data section emphasizes objectiveness, completeness and continuity.
- This section, the Environmental Report, summarizes environmental aspects of FY2013 based on the JTEKT 2015 Environmental Action Plan.

Target period and target organizations/scope

Target period

FY2013 (April 2013 - March 2014)

* Some items include content from other periods.

Target organizations and scope

All JTEKT Corporation activities

Management of the JTEKT group is carried out on a group-wide basis and includes elements such as environmental data measurement and control based on a uniform standard. Some items also show the performance of our domestic affiliated companies and overseas local affiliates. As a general rule, if there are changes in the tallying scope, we revise data dating back to the past.

Reference guidelines

- GRI (Global Reporting Initiative)
"Sustainability Reporting Guidelines 2013 (G4)"
- Japan's Ministry of the Environment
"Environmental Reporting Guidelines" (2012 edition)
- ISO26000 (International Standard for corporate responsibility)
- A calculation standard stipulated by GHG Protocol Initiative
- Ministry of the Environment and Ministry of Economy, Trade and Industry
"Basic Guidelines relating to Calculation of Greenhouse Gas Emissions in Supply Chains"

New! This mark is used to indicate new action begun in FY2013 and information disclosed for the first time in this year's report.

Environmental management	E_01
Environmentally considerate development and design	E_09
Prevention of global warming	E_10
Effective use of resources	E_13
Control and reduction of environmentally burdensome substances	E_17
Biodiversity conservation	E_18
Appendix	E_20

Environmental data for each operation base of the JTEKT group can be viewed on the JTEKT website.

http://www.jtekt.co.jp/e/csr/env_data.html

Environmental Report

Environmental management

Social background

Corporate activities influence the world environment on a wide scale. An increasing number of destructive storms due to climate change are some of the various risks and chances companies themselves must face. A level of environmental consideration, from a comprehensive perspective, is demanded of companies that wish to expand their business worldwide.

JTEKT's concept

For sustainable development of the planet

To realize our corporate philosophy of "contributing to the happiness of people and the abundance of society through product manufacturing, the JTEKT group has positioned the environment as one of the main management issues and is involved in action which contributes to the sustainable development of society and the planet. We are greatly aware of the impact corporate activities have on the environment, and are working proactively to tackle matters of high importance.

JTEKT Group Environmental Vision

▶ Figure-01

Based on the CSR policy, JTEKT established the JTEKT Group Environmental Vision comprised of an environmental philosophy and policy defining global environmental conservation action. We aim to achieve a sustainable society, establishing an action plan and promoting activities to achieve this goal.



Promotion structure

Under the Global Environmental Conservation Committee

▶ Figure-02

JTEKT engages in environmental management led by the Global Environmental Conservation Committee chaired by our company president. The committee is divided into five specialized environmental subcommittees to be able to flexibly address issues relating to business activities. The subcommittees set targets based on company-wide policies as well as discuss and decide upon measures and control progress.

Reorganized structure for specialized environmental subcommittees

In FY2013 we changed the organizational structure of the specialized environmental subcommittees. The activities by the "Pollution Subcommittee" on biodiversity conservation and management of PCB disposal have been fused with the activities of the "Environmental Risk Social Contribution Subcommittee" as a part of activities for compliance with laws and regulations and for societal contribution.

Environmental management

▶ Figure-01 JTEKT Group Environmental Vision

Environmental Philosophy

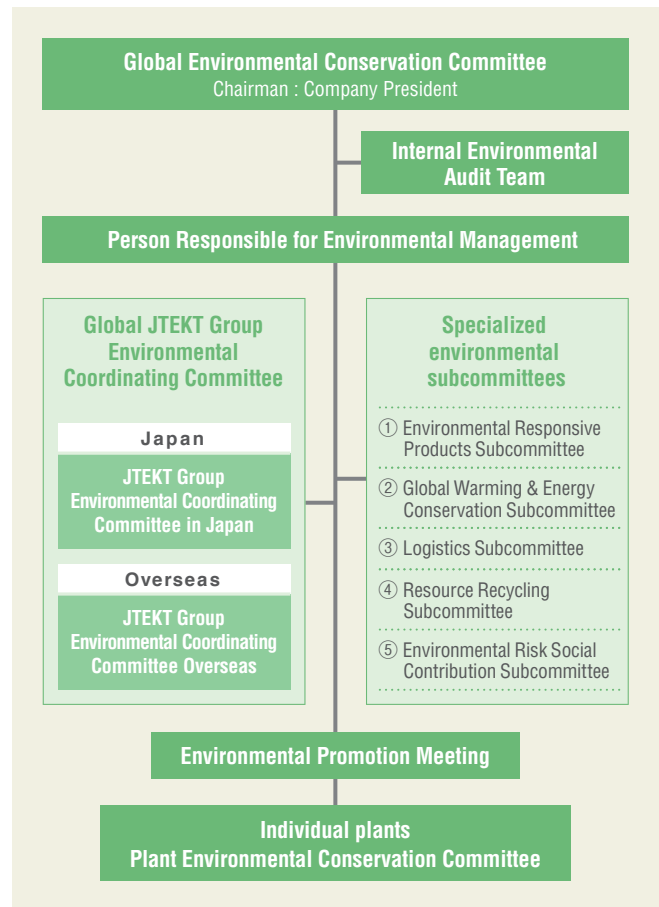
The JTEKT group is aiming to reduce the environmental load of our business activities and products throughout their life-cycle in order to conserve the global environment for future generations and realize a sustainable society.

Environmental Policy

JTEKT, based on a deep awareness of the importance of global environmental conservation, will proactively pursue environmental conservation in all business activities in the fields of bearings, driveline components, steering systems, and machine tools & mechatronics at all plants, head offices and sales offices with the active participation of all employees.

1. Continuously improve our environmental management system to harmonize our business activities with the environment and promote the cooperation of all suppliers of raw materials, etc.
2. Comply with all requirements of environmental laws, regulations, treaties, agreements, etc., related to our business activities and strive to prevent environmental pollution. Also, contribute to society by accurately grasping technical needs related to global environmental conservation and developing products to meet such needs.
3. Raise the environmental awareness of all employees and pursue the following as important environmental management objectives in relation to all our business activities, products and services
 - (1) Develop and design environmentally friendly products
 - (2) Reduce CO₂ emissions through effective energy utilization
 - (3) Reduce waste
 - (4) Thoroughly control chemical substances and reduce environmentally burdensome substances
 - (5) Reduce primary materials and secondary materials
 - (6) Reduce CO₂ emissions in logistics
 - (7) Maintain and improve community environments
4. Maintain an environmental conservation promotion structure, clarify the purposes and targets of environment conservation activities, conduct periodic reviews, and pursue environmental conservation activities with the participation of all employees.
5. Maintain an awareness of the community surrounding each business site, maintain good communication with concerned government agencies and local residents, and publicly disclose information on our environmental management activities as necessary.

▶ Figure-02 Organizational chart



Promotion of global environmental management

The target companies of the JTEKT group was reviewed in FY2013 and expanded to include the 21 Group companies in Japan, and 40 Group companies overseas. We are currently working to further strengthen our environmental management.

→ E_20 Appendix-01

Environmental management

Targets and results

JTEKT Environmental Action Plan 2015 Environmental Action Plan

▶ Figure-01

JTEKT has formulated a 2015 Environmental Action Plan stating initiatives and concrete objectives to promote the environmental preservation activities of JTEKT, JTEKT group companies, and JTEKT suppliers.

In FY2013, the first year for step 2, we conducted activities to be achieved in 2015. Regarding CO₂ emissions, we have improved our CO₂ emission base units by 5% compared with FY2008, achieving our target for FY2013. We are currently promoting ac-

tivities for achieving the government target of 2020, and continue to contribute to the realization of international society's goal of cutting greenhouse gases to half of what they were in 2000 by the year 2050.

▶ Figure-01 2015 Environmental Action Plan

Area	Action items	Targets and initiatives	FY2013 results of activities	Evaluation	Related pages
Environmental management	(1) Strengthen and promote consolidated environment management	(1) Share the JTEKT Group Environmental Vision	(1) Continued activities with group companies in Japan and overseas (2) Held Environmental Coordinating Committee sessions	○	E_01 E_02 E_07
	(2) Promote environmental activities in cooperation with business partners	(1) Further promote green purchasing (2) Roll out environmentally friendly purchasing guidelines to business partners	(1) Expanded Green Purchasing Guidelines		S_04
	(3) Promote sustainable plant activities	(1) Introduced of reusable energy (2) Promoted plant greenification	(1) Introduced 50 kW of solar power generation to our Tokushima plant (2) Introduced 5 kW of solar power generation to our Iga Proving Ground		E_12
	(4) Promote environmental education activities	(1) Promote education with the objective of improving environmental awareness	(1) Environmental education in Environmental Month (2) Rank-specific education		E_08
Develop and design environmentally friendly products	(1) Develop new technology and new products leading to environmental burden reduction	(1) Reduce the environmental burden of new products through an environmental efficiency basic formula (2) Promote recycle design (3) Promote life cycle assessment (LCA) activities	(1) Developed a general purpose cylindrical grinder (GE4i)	○	Message P6~11 E_09
	(2) Reduce resource consumption		(2) Developed a 3rd generation ITCC utilizing a new high performance electromagnetic clutch		
	(3) Promote recycle design considering effective resource use		(3) Developed a 3rd generation tapered roller hub unit		
	(4) Roll out environmental assessments in the design and development phases				
	(5) Control and reduce environmentally burdensome substances contained in products		(1) Promote response to chemical substance regulations		

Environmental management

* Values in square brackets are comparisons with the base year

Area	Action items	Targets and initiatives	FY2013 results of activities	Evaluation	Related pages																
Reduce CO ₂ emissions	(1) Reduce CO ₂ in production and logistics ● Global reduction of CO ₂ ● Reduction of CO ₂ in logistics	Production (1)Promote CO ₂ reduction activities through the development and introduction of low CO ₂ production technologies and daily improvements (2)Horizontal deployment of energy-saving improvement cases (3)Visualization of energy	<table border="1"> <thead> <tr> <th>Item</th> <th>FY2015 target</th> <th>FY2013 target value</th> <th>Results</th> </tr> </thead> <tbody> <tr> <td>CO₂ emissions</td> <td>FY2015 basic unit target × production volume</td> <td>240,223 t-CO₂</td> <td>240,024 t-CO₂ [-]</td> </tr> <tr> <td>Emissions by in-house production volume</td> <td>145.0 t/100 mill yen</td> <td>Down 7% from FY2008 148.1 t/100 mill yen</td> <td>148.1 t/100 mill yen [Down 5.0%]</td> </tr> <tr> <td>Globally Emissions by in-house production volume</td> <td>166.4 t/100 mill yen</td> <td>Down 3% from FY2012 169.9 t/100 mill yen</td> <td>169.0 t/100 mill yen [Down 1.5%]</td> </tr> </tbody> </table>	Item	FY2015 target	FY2013 target value	Results	CO ₂ emissions	FY2015 basic unit target × production volume	240,223 t-CO ₂	240,024 t-CO ₂ [-]	Emissions by in-house production volume	145.0 t/100 mill yen	Down 7% from FY2008 148.1 t/100 mill yen	148.1 t/100 mill yen [Down 5.0%]	Globally Emissions by in-house production volume	166.4 t/100 mill yen	Down 3% from FY2012 169.9 t/100 mill yen	169.0 t/100 mill yen [Down 1.5%]	○	E_10 E_11
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		Logistics (1) Reduce CO ₂ through transportation improvements	<table border="1"> <thead> <tr> <th>Item</th> <th>FY2015 target</th> <th>FY2013 target value</th> <th>Results</th> </tr> </thead> <tbody> <tr> <td>CO₂ emissions</td> <td>13,300 t-CO₂</td> <td>Down 16% from FY1990 13,430 t-CO₂</td> <td>14,330 t-CO₂ [Down 10%]</td> </tr> <tr> <td>Emissions by sales</td> <td>2.39 t/100 mill yen</td> <td>Down 15% from FY2006 2.45 t/100 mill yen</td> <td>2.24 t/100 mill yen [Down 21%]</td> </tr> </tbody> </table>	Item	FY2015 target	FY2013 target value	Results	CO ₂ emissions	13,300 t-CO ₂	Down 16% from FY1990 13,430 t-CO ₂	14,330 t-CO ₂ [Down 10%]	Emissions by sales	2.39 t/100 mill yen	Down 15% from FY2006 2.45 t/100 mill yen	2.24 t/100 mill yen [Down 21%]	△	E_12				
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(2) Promote reusable energy	(1) Introduction of reusable energy	(1)Introduced 50 kW of solar power generation to our Tokushima plant (2)Introduced 5 kW of solar power generation to our Iga Proving Ground	○	E_12																	
Reduce waste	Production (1) Promote thorough reduction of waste through countermeasures focusing on the source of the waste (2) Achieve zero emissions in all JTEKT group plants (JTEKT itself achieved zero direct landfill waste in FY2009 and is continuing to aim for zero waste production in other areas)	Production (1) Reduction of emissions through countermeasures focusing on the source (2) Promotion of a shift to valuable resources (3) Reduction of emissions through using less and reusing	<table border="1"> <thead> <tr> <th>Item</th> <th>FY2015 target</th> <th>FY2013 target value</th> <th>Results</th> </tr> </thead> <tbody> <tr> <td>Emissions by in-house production volume</td> <td>7.1 t/100 mill yen</td> <td>Down 15% from FY2008 7.45 t/100 mill yen</td> <td>6.7 t/100 mill yen [Down 20%]</td> </tr> <tr> <td>Direct land-fill waste</td> <td colspan="2">Zero</td> <td>Zero</td> </tr> </tbody> </table>	Item	FY2015 target	FY2013 target value	Results	Emissions by in-house production volume	7.1 t/100 mill yen	Down 15% from FY2008 7.45 t/100 mill yen	6.7 t/100 mill yen [Down 20%]	Direct land-fill waste	Zero		Zero	○	E_14				
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Logistics (1) Reduce packaging material consumption through simpler packaging, using more returnable containers, etc.	Logistics (1) Transition to returnable (2) Simplification of packaging by changing packing style	<table border="1"> <thead> <tr> <th>Item</th> <th>FY2015 target</th> <th>FY2013 target value</th> <th>Results</th> </tr> </thead> <tbody> <tr> <td>Emissions by sales</td> <td>0.84 t/100 mill yen</td> <td>Down 15% from FY2006 0.86 t/100 mill yen</td> <td>0.78 t/100 mill yen [Down 22%]</td> </tr> </tbody> </table>	Item	FY2015 target	FY2013 target value	Results	Emissions by sales	0.84 t/100 mill yen	Down 15% from FY2006 0.86 t/100 mill yen	0.78 t/100 mill yen [Down 22%]	○	E_15									
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Emissions by sales	0.84 t/100 mill yen	Down 15% from FY2006 0.86 t/100 mill yen	0.78 t/100 mill yen [Down 22%]																		
Effective use of resources	(1) Reduce waste in production/water usage and effectively use resources	Waste (1) Reduce stock removal and improve yield through design and technique changes (2) Countermeasures targeting point of origin, reduction	Waste by in-house production volume Results 37.4 t/100 mill yen Waste by water usage Results 1.62 t/100 mill yen	-	E_13 E_16																
		Water usage (1) Promote recycling, water conservation and waste reduction																			
Reduce primary materials and secondary materials	(1) Reduce environmentally burdensome substances in production activities	(1) Substitution with products that don't contain substances subject to PRTR	(1) Release and transfer of substances subject to the PRTR: 37.3 t	○	E_17																
Preserve and improve the global environment, forge communication	(1) Enforce preventative measures for environmental problems and observe regulations	(1) Ongoing efforts for zero environmental regulation violations and claims from residents through the strengthening of daily control tasks	Environmental accidents: 1 Late reports of accidents: 1		E_08 E_17																
	(2) Build good relationships with local residents	(1) Promote environmental conservation activities around plants (2) Build good relationships with local residents and councils	(1) Clean-up activities around plant (2) Held environmentally-related discussions with local community		E_17 S_15 S_16 S_18																
	(3) Proactive disclosure of environmental information and enhancement of communication activities	(1) Enhance and continue issuance of CSR reports (2) Provide more environmental information	(1) Issued CSR report 2013	△	S_15																
	(4) Action for biodiversity	(1) Promote activities based on our Biodiversity Conservation Action Guidelines	(1) Conservation of sea turtles (2) Activities for preservation of woodland areas (3) Installation of a biotope		E_18 E_19 S_16 S_18																

Environmental management

Environmental impact on business activities

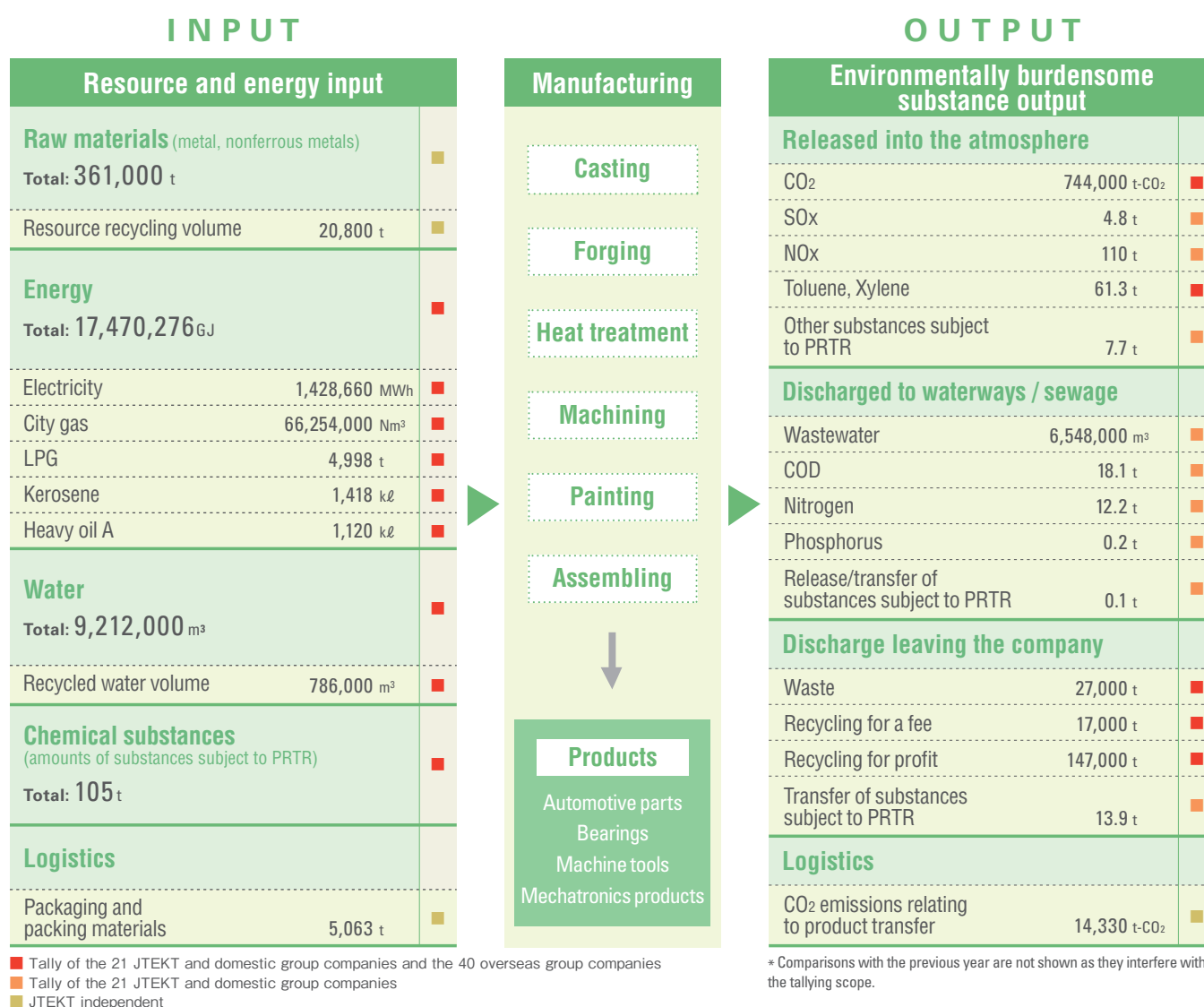
Reduction of environmental burden in all stages

JTEKT strives to quantitatively grasp resource and energy amounts used (input) and amounts discharged into the environment (output) and reduce environmental burden in all business activity stages.

Resource and energy input versus environmentally burdensome substance output ▶ Figure-01

The table below shows the resource and energy input versus environmentally burdensome substance output for FY2013. To minimize the impact our business activities have on global warming, JTEKT is working to reduce the amount of energy used in all our processes, including casting, forging, heat treatment, machining processes and so forth. We also make efforts to convert to more efficient energy such as electricity and city gas.

▶ Figure-01 Resource and energy input versus environmentally burdensome substance output



Heavy oil A: Among the three classes (A, B, C) of heavy oil, heavy oil A is the closest to kerosene and is used as fuel for boilers or heating.

GJ: Giga-joule (heat quantity unit), G=10⁹

PRTR regulation: "PRTR" is an abbreviation for Pollutant Release and Transfer Register, which is a system announced by the government for reporting the amount of chemical substances released or transferred.

COD: Chemical Oxygen Demand (water quality index)

Charged recycling: Pay a processing fee to recycle.

Environmental management

CO₂ emissions for the overall supply chain ▶ Figure-02

JTEKT has calculated the amount of CO₂ emissions based on guidelines established by the Ministry of the Environment and Ministry of Economy, Trade and Industry (*1). We are currently working to reduce CO₂ emissions from the supply chain, JTEKT business activities, and the use and disposal of products sold. The below table shows the results of FY2013.

→ E_20 Appendix-02

*1 Guidelines established by the Ministry of the Environment and Ministry of Economy, Trade and Industry Basic guidelines relating to calculation of greenhouse gas emissions produced in the supply chain.

▶ Figure-02

CO₂ emissions for the overall supply chain

Scope(*2)	Emissions(t-CO ₂)	Remarks
Scope 1 (Self-produced direct emissions)	47,700	Self-produced emissions through using city gas and other fuels
Scope 2 (Indirect emissions produced by own energy source)	192,300	Emissions produced due to using electricity purchased by JTEKT
Scope 3 (Other indirect emissions)	1,011,300	Emissions produced by related activities such as raw material purchasing, disposal and distribution

*2 Scope The calculation scope for greenhouse gas emissions stipulated by the GHG Protocol Initiative which prepares the global guidelines for calculating and reporting greenhouse gas emissions.

Environmental accounting

Cost and results appraisal

▶ Figure-03

By quantitatively appraising the cost and results of environmental conservation activities, JTEKT is constantly making improvements effectively and efficiently. We use environmental accounting to provide information to our stakeholders on JTEKT's environmental conservation activities. The tally system is in accordance with the Ministry for Environment's Environmental Accounting Guideline.

Environmental accounting results for FY2013

Environmental conservation costs for FY2013 were 1.52 billion yen in investments and 3.41 billion yen in management costs, adding up to a total of 4.93 billion yen. This was an increase of 240 million yen (5%) from the previous year. The main investments were in measures to prevent underground seepage of oils and establish energy-saving countermeasures.

▶ Figure-03

Environmental conservation costs

(Million yen)

Type	Details	Investment	Cost
[1] Business on-site costs	● Service & upkeep of environmental equipment	237	251
① Pollution prevention costs			
② Environmental conservation costs	● Measures for energy conservation	204	71
③ Resource recycling costs	● Waste processing, recycling	77	398
[2] Upstream and downstream costs	● Green purchasing	—	38
[3] Management activity costs	● Environmental monitoring, measurements, etc.	4	151
[4] R&D costs	● R&D of environmentally friendly products	1,002	2,428
[5] Social activities costs	● Disclosure of environmental information, greenification, etc.	—	63
[6] Environmental damage costs	● Soil and groundwater restoration	—	5
Total		1,524	3,405
Gross amount		4,929	

Economic benefit of environmental conservation measures

(Million yen)

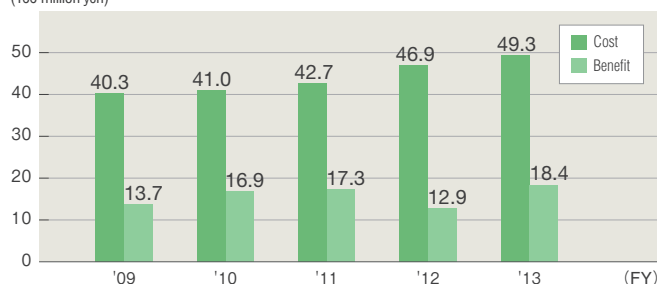
Details of benefits	Economic benefit
Profit from recycled material sales	1,282
Energy-cost reduction from promoting energy conservation	508
Reduction of waste processing costs	46
Total	1,836

Benefits towards material amount reduction from environmental conservation measures

Details of benefits	Benefits towards material amount reduction
Energy consumption (t-CO ₂)	18,800
Waste output (t)	2,310

Cost and benefits of environmental conservation measures

(100 million yen)



It is not possible to calculate the economic benefits brought about by environmental conservation measures such as increased product value, avoiding environmental risk and improving corporate image. We have only calculated items which can be accurately appraised such as energy-savings benefits, etc.

Calculated area : JTEKT Corporation (including some group companies within workplaces)

Calculated period : FY2013 (April 2013 to March 2014)

Environmental management

Major activities in FY2013

JTEKT Group Environmental Coordinating Committees

In FY2013 we hosted the JTEKT Group Environmental Coordinating Committee at domestic and overseas Group companies. Each year, policies for the overall Group and targets are shared in order to strengthen our efforts.

Domestic JTEKT Group Environmental Coordinating Committee

As JTEKT expanded the number of domestic Group companies to 21 in FY2013, we have increased the holding of the JTEKT Group Environmental Coordinating Committee from 2 times to 3 times a year. We are advancing activities for CO₂ reduction, waste reduction, and environmental disturbance prevention.

In April 2013, a committee session was held for the executives in charge of the environment at domestic Group companies, and action policies for achieving the 2015 targets of the 2015 Environmental Action Plan were shared. In July and December of 2013, in addition to reporting and discussing our performance up until now and future efforts, on the plant tour, risk countermeasures such as environmental equipment were confirmed in an effort to improve environmental conservation countermeasures.



Domestic JTEKT Group Environmental Coordinating Committee held on July 17th

Overseas JTEKT Group Environmental Coordinating Committee in Japan

In February 2014, an Environmental Coordinating Committee was held in which the representatives of JTEKT overseas Group companies participated. As with the domestic committee gathering, participants shared action policies aimed at achieving 2015 goals, and furthered activities for improvement. We will build a consolidated environmental audit system to bring the enforcement of compliance to a new level.

China Safety and Health Environment (EHS) Section Meeting

JTEKT held a meeting in China concerning safety, health and the environment during September 2013 and March 2014. Environmental activities and issues at each Group company in China were reported, and mutual environmental awareness was improved through the implementation of inspection tours both inside and outside of plants. Meetings will be held at each Group company in turn for brainstorming based on the idea of “genchi genbutsu” and to proactively engage in furthering environmental activities.



China EHS Section Meeting held on March 21st

Zhang Xian
JCC (China)

My
CSR

Aiming for zero work-related accidents and zero environmental accidents!



Safety and health environment (EHS) activities were begun at JCC in 2013, targeting Group companies within China. As it is my job to coordinate EHS, I work to gather personnel in charge of EHS at each company to host the EHS Section Meeting twice a year. I do my best to promote themed activities and exhibitions on disaster and accident information, for the purpose of achieving “zero work-related accidents” and “zero environmental accidents”. I also conduct exchanges between Group companies.

I strongly believe that to accomplish zero work-related accidents and zero environmental accidents, it is most important that we improve awareness among the 5,200 JTEKT employees in China. I am engaged in EHS activities to ensure that all employees “come to work happy, and leave work without incident” each day, as is written on the safety gate.

Environmental management

Reducing environmental risk

Environmental accident prevention activities **New!**

To prevent environmental accidents, we share countermeasures implemented in response to incidents occurring both internally and externally for similar equipment. Moreover, we have set internal standards (*1) more stringent than regulations in order to observe environmental legislation, treaties and convention levels and manage these standards thoroughly.

In addition, to prevent exceeding internal standards, we have set "action standards" as management values to implement measures whenever it is confirmed that measurement values are in an upward trend. The point in time to take action has conventionally been the discretion of the person in charge at the actual site; however, we aim to achieve zero environmental accidents by newly establishing judgment standards.

***1 Internal standards** JTEKT's final affluent internal standards are 80% of regulatory requirements.

Legal compliance with environmental legislation

In FY2013, heavy rains from a typhoon caused an external leak of sewage at JTEKT and Group companies. This incident was reported to the proper authorities and corrective actions were completed. In addition to identifying the cause and implementing countermeasures, we will share information with other plants and Group companies, and continue our efforts towards accident prevention through the deployment of countermeasures.

Other than the environmental accident just described, in FY2013 there were 2 instances of environmental near-miss incidents (*2), 2 reports concerning noise, and 1 delay regarding legal notification. A companywide countermeasure meeting will be held and compliance enforced in order to prevent reoccurrence of any of these incidents. Excluding the matters written above, there were no cases exceeding environmental regulation values or internal standards, nor were there any environmentally-related lawsuits, penalties, or fines.

***2 Environmental near-miss incidents** Incidents that had only a slight impact on the environment and were handled within the area they occurred in.

Environmental patrols by the plant manager

As part of our Environmental Month every June, managers of each plant conduct environmental patrols. In FY2013, we confirmed the appropriate management of hazardous material storage locations, implementation of daily inspections of environmental facilities, and recurrence prevention countermeasures for environmental accidents/close calls that occurred at JTEKT plants in the past.



Environmental patrol (Nara plant)

Emergency drills

In preparation for various environmental accidents, emergency training is carried out regularly at each plant. Following on from FY2012, in FY2013 also, emergency training assuming abnormal occurrences such as tank oil leaks, etc. was carried out. Emergency training was also carried out for nightshift workers assuming that emergency situations could also occur at night.



Emergency drills (Sayama plant)

Environmental audits

Internal audits

JTEKT conducts internal audits annually to confirm the operational status of our environmental management system and observance of legislation. We correct all issues identified in this audit.

External audits (ISO14001)

JTEKT was subjected to an ISO14001 surveillance inspection in April of 2014. As a result, there were 0 cases of non-conformity, and our environmental management system conformed to standard requirements and was deemed as being carried out effectively. However, 4 cases were identified as having room for improvement, therefore the departments which should handle these were specified and corrections are being made.



Specialized environmental subcommittee inspection

Environmental education

Environmental awareness education

During Environment Month in June of 2013, environmental awareness training was held for all employees utilizing e-learning. The theme for this month's training was "Eco-change! Learn on your own and practice on your own (Environmental compliance strengthening)", and approximately 6,100 employees participated in the course.

VOICE

Activities for obtaining ISO14001 certification

Along with the completion of a new plant, JAAR (Argentina) has formed an ISO team and begun actions towards the obtainment of ISO14001 certification in March of 2015. These actions focus on quality control and general affairs, though the human resources, casting, production administration, and finance and accounting departments will also participate, working together as one plant to advance towards their goal. JAAR has scheduled the production of hydraulic power steering gears for the next world car planned for the latter half of 2015, and will continue to proactively promote energy-saving by improving production efficiency, and reduce waste.

The JAAR ISO team



Environmentally considerate development and design

Social background

The influence of product usage on the environment is deeply related to the development and design phases of the product. To reduce the environmental burden, companies must be the first in society to develop technology which alleviates the environmental burden, and work to create product design which makes reusing and recycling easy.

JTEKT's concept

Improve each product from every angle

JTEKT, in line with our corporate philosophy of "contributing to the happiness of people and the abundance of society through product manufacturing", develops and designs environmentally-friendly products. We believe that JTEKT's products and technologies provide environmental countermeasures for our customer's products and manufacturing processes and as such, greatly contribute to the environment. Therefore, we strive to improve the environmental performance of each product throughout the entire product life cycle, and are producing results which will contribute to the prevention of global warming and the effective use of resources.

Promotion structure

Promotion by the Environmental Responsive Products Subcommittee

Under the guidance of the Global Environment Conservation Committee, which unites companywide environmental conservation activities, the Environmental Responsive Products Subcommittee is promoting the development of environmentally-friendly products together with domestic Group companies. Innovative technology is used in the de-



My CSR

Kiyotaka Kinoshita
Automotive Systems Business Headquarters
Engineering Planning Dept. Engineering Planning Office

Take it easy Spreading environmental improvement awareness

My place of work mainly supports the development and design of drive unit parts for cars. Those in charge of development and design are engaged in fierce price competition with rival companies, competing ruthlessly for high performance and compactness. At the same time, they must work to promote environmental design which cuts CO₂ throughout the entire product life cycle. Through 3R (*) activities, we will make people understand that it is a product's high performance and small size that truly lightens the environmental burden. We will help ease environmental concerns as well through the environmental preservation improvements we propagate.

*3R Originating from the first letters of Reduce, Reuse and Recycle, 3R is a concept expressing the order of priority for waste handling.

velopment and design stages to make products smaller, lighter, and more efficient, and reduce the amount of environmentally burdensome substances and raw material usage. In this way, JTEKT is engaging in environmental conservation on a global scale.

Assessment method

JTEKT has established an original environmental efficiency basic equation to serve as an index in quantitatively assessing environmental load reduction benefit. The larger the value, the greater the environmental load reduction benefit is. Each year JTEKT sets higher environmental efficiency targets and works to reach them while monitoring progress.

Environmental efficiency basic equation and environmental efficiency value calculation

Environmental efficiency is a value calculated based on the degree of lightness, compactness, energy-savings, etc. The environmental efficiency value is calculated by dividing the environmental efficiency of the assessed product by that of the standard product.

Environmental efficiency

$$\frac{\text{Product performance}}{\text{Product environmental load}} = \frac{1}{\sqrt{W^2 + T^2 + E^2}}$$

W : Mass T : Loss E : Energy

Calculation of environmental load reduction effect

As the environmental load reduction effect, it is possible to seek environmental load reduction ratio more than the environmental efficiency value. For example, if the environmental efficiency value was 1.25, that product's environmental load reduction benefit would be 20%. A reduced environmental load is sought as the reverse of the environmental efficiency value.

Environmental efficiency value

$$\frac{\text{Environmental efficiency of assessed product}}{\text{Environmental efficiency of standard product}}$$

Environmental load reduction ratio

$$\left(1 - \frac{1}{\text{Environmental efficiency value}} \right) \times 100$$

Evaluation of the 3 products shown in "Message"

→ [Message] P7・8・10 Related article

Developed product name	Environmental burden reduction percentage
General purpose cylindrical grinder GE4i	10.0%
3rd generation ITCC	32.0%
3rd generation tapered roller hub unit	5.0%

Group company activities

JTEKT conducts environmental design activities with intimate interaction between each operations headquarters and Group companies. Through creative ideas from the design stage, products of the JTEKT group are contributing to the world environment.

Main measures

Domestic Group companies Toyooki Kogyo Co., Ltd.

Power reduction for hydraulic units

A hydraulic pump is utilized within the hydraulic units used in workpiece clamps, etc. of machine tools. At Toyooki Kogyo Co., Ltd., efforts to improve this hydraulic pump have thoroughly decreased the size of internal parts, leading to the reduction of energy loss due to friction, and reduced internal leaks through pressure balance optimization. By improving machine efficiency, power usage was reduced by 18% percent.



Prevention of global warming

Social background

In 2013, the latest report by the UN Intergovernmental Panel on Climate Change (IPCC) stated that there is a 95% chance that global warming is caused by human activity. While the world aims to reduce greenhouse gas emissions, it is important that companies redouble their efforts to curb indirect emissions as well as direct emissions.

[→ E_06 Related article](#)

JTEKT's concept

Reducing CO₂ emissions across all processes

In order to help prevent global warming, JTEKT engages in activities to reduce CO₂ emissions in the production and transportation of products. All Group companies, both in Japan and overseas, promote energy-saving methods and the use of reusable energy throughout all processes from product design to delivery.

Stabilization of power supply and demand

In order to continuously counter power shortages, JTEKT proactively engages in energy-saving activities such as introducing even better energy-saving equipment in addition to introducing our own power generation based on a plan up until 2015. By supplying our own power, we can continue stable business activities, suppress demand for purchased power, as well as contribute to the stabilization of supply and demand.

[→ \[Message\] P13 Related article](#)

Reducing CO₂ emissions in production

Reducing domestic CO₂ emissions

[▶ Figure-01](#)

JTEKT is working to reduce the base units of CO₂ emissions by 7% compared with FY2008, the target we have set for FY2015. The base units of CO₂ emissions in FY2013 were 148.1 tons/100 million yen, achieving our goal. We have reduced our CO₂ emission amount by 18,800 tons through energy-saving reforms; however, emissions have actually risen by 4.2% (9,800 tons) due to a 4.5% rise in production.

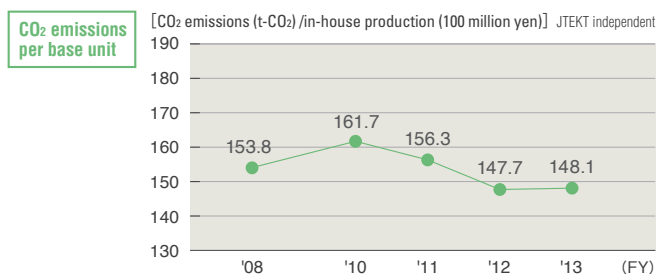
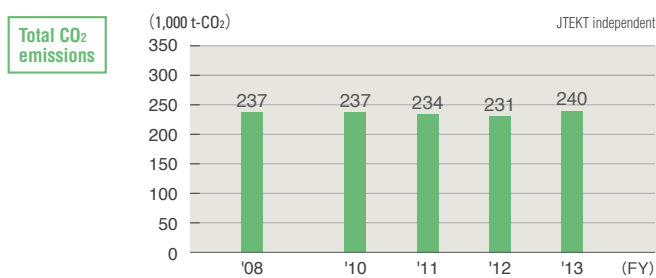
Reduction of global CO₂ emissions

[▶ Figure-02](#)

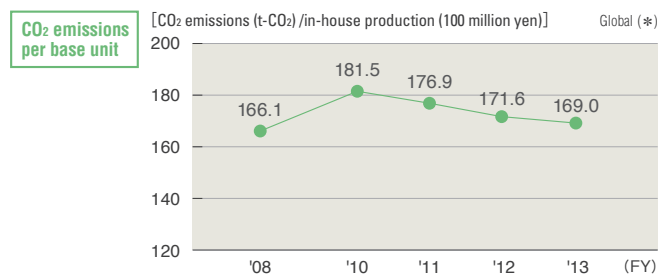
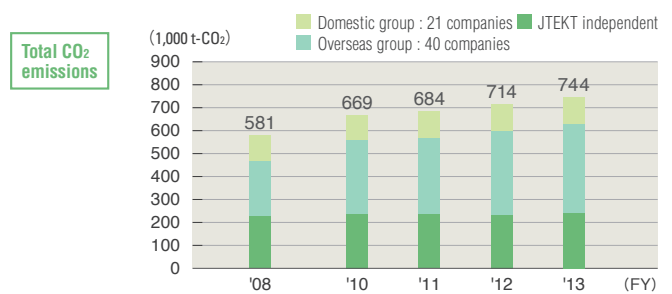
With an aim to minimize the impact of our global production operations on global warming, JTEKT is working to reduce CO₂ emissions not only within JTEKT but also at its Group companies in Japan and overseas.

In FY2013, we achieved a 1.5% base unit reduction. We will continue to improve productivity in order to prevent global warming and improve production efficiency as a group on the whole.

[▶ Figure-01](#) Transition of total and per base unit CO₂ emissions in production



[▶ Figure-02](#) CO₂ emissions (global and base unit)



*JTEKT + 21 domestic group companies + 40 overseas group companies

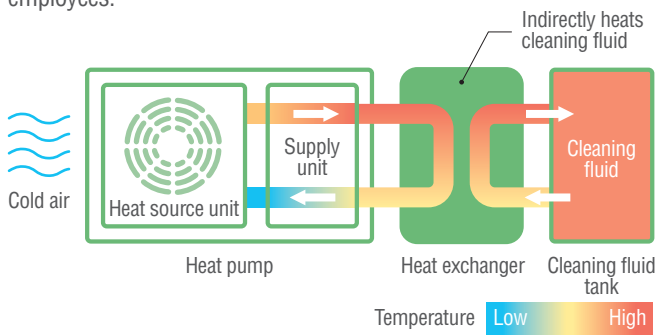
* There were 17 domestic Group companies before FY2011 and 32 overseas Group companies before FY2009.

Prevention of global warming

Main measures

Heat pump for the washing machine heater

At the Okazaki plant, there is a process for washing parts before product assembly. To dry the washed parts quickly, the cleaning fluid is warmed with a heater. An indirect method for heating the cleaning fluid was introduced after studying the application of the technology within heat pump water heaters used in general households. As a result, the fluid could be heated using approximately 30% the power consumption of conventional heaters. This reduced annual power consumption by 34,000 kWh, and cut annual CO₂ emissions by approximately 13 tons. Also, the workplace is cooled by utilizing the air exhaust from the endothermic side, with favorable opinions from employees.

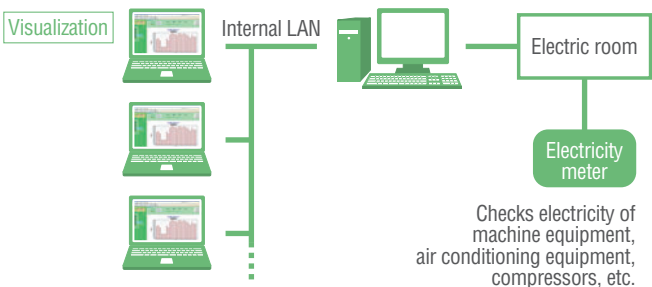


Domestic group company **Koyo Sealing Techno Co., Ltd**

Wasted energy discovered through introduction of energy monitoring system

Employees at Koyo Sealing Techno Co., Ltd. have been continuing energy-saving activities for a while, and measures have recently peaked. Because energy usage was confirmed each month by reading the meter, energy-saving measures were slowed, and issues were difficult to spot.

Therefore, electricity meters that measure automatically were installed at each production area, and an energy monitoring system was introduced where the amount of electricity could be viewed on the Web. Through this visualization of energy usage, wasted energy was discovered within the press machines, compressors, groundwater pumps, and other devices. Reforms have reduced CO₂ emissions by an annual 7.3 tons.



- [Functions]
- ① Data collection function ▶ Automatically collects data.
 - ② Database function ▶ Builds with collected data.
 - ③ Visualization function ▶ Important data can be seen by personnel through the Web function.
 - ④ Analysis and ledger function ▶ Can be used on on-site computers.

In-house power generation activities

JTEKT has introduced in-house power generation focused on cogeneration in order to stabilize the supply and demand of power and provide an off-grid power source for emergencies. In FY2013, the Kokubu plant installed its 2nd cogeneration system of 1,000 kW, and the Tokyo plant utilized subsidies from the Ministry of the Environment and Ministry of Economy, Trade and Industry to fund an installation of a 930 kW cogeneration system. This brings our power generation capacity for all plants to 16,995 kW, and our in-house power generation percentage (*) to 16.2%. The installation of cogeneration into other plants that have heat treatment processes will be reviewed.



Tokyo Plant

→ [Message] P13 Related article

*In-house power generation percentage Internal power generation capacity/FY2010 peak power

TOPICS

Cogeneration award in 2013 Winner of the Outstanding Performance Award in the Industrial Division



The cogeneration system introductory example of the Kokubu plant was given the Outstanding Performance Award in the industrial division of the Cogeneration Award on February 12th, 2014. With the combination



of an absorption type refrigerating machine, the system was able to achieve a low temperature waste heat down to 60° C, and was given high evaluations.

Kokubu recognition
Process Engineering Dept. Masaru Gotou (middle)
Process Engineering Dept. Atsushi Miyazaki (back left)

Kenji Yoshida
Automotive Systems Business Headquarters
Okazaki Plant
Manufacturing Engineering Dept.
Process Engineering Section

My
CSR



Promoting energy-saving with ingenuity, starting with visualization

Various activities are being conducted to reduce energy usage at the Okazaki plant, such as productivity improvement and the introduction of high efficiency devices. An energy monitor has been installed in each area, and the plant's electricity usage and air pressure are visualized in real time so that motor power equipment can be operated in the optimum state, cutting wasted electricity. Cogeneration output is adjusted in coordination with the cast iron melting process, which consumes a high amount of power, and this enables operation at the best balance of gas and electricity.

All employees are participating together and using their ingenuity to further energy-saving activities.

Prevention of global warming

Main measures

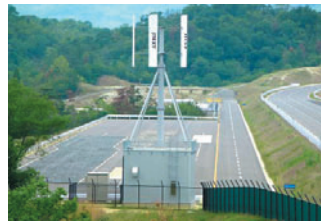
Efforts towards renewable energy

JTEKT is proactively introducing renewable energy with small environmental burden. In FY2013, 50 kW of solar power generation was introduced at the Tokushima plant, anticipating an annual CO₂ reduction of approximately 19.3 tons. The power generated is used in the waste water treatment site and in other areas, and acts as an autonomous power source to supply electricity to the police/safety and administration buildings in case of an emergency or crisis. A 5 kW vertical shaft wind turbine has been installed at the Iga Proving Ground. Analysis of the actual usage conditions for the bearings used in wind power will help us to understand issues that occur, and will aid in new product development and design for wind power bearings. We will continue to contribute to the expansion of renewable energy as a bearing maker, and aim to have a total of over 500 kW of renewable energy at our company by 2020, as part of our determination to promote the creation of a plant in harmony with nature.

→ [Message] P9 Related article



Solar power generation (Tokushima plant)



Wind power generation (Iga Proving Ground)

VOICE Obtainment of ISO50001 certification

New!

In November of 2013, KBDE (Germany) obtained the Energy Management System international standard ISO50001 certification. ISO50001 evaluates CO₂ emission reduction results obtained from actual activities, in addition to the efforts required by Environmental Management System ISO14001 towards continual improvements.

Throughout 2013, an improvement team consisting of plant employees conducted energy-saving activities, achieving a 47% reduction in gas and electricity usage for air conditioning, compared with the previous year. These results will be shared with all employees in the monthly report to improve employee awareness. We will promote energy-saving through actions such as production line integration, and continually raise our energy use efficiency under the guidance of the Energy Management System.



KBDE improvement team



ISO50001 registration certificate

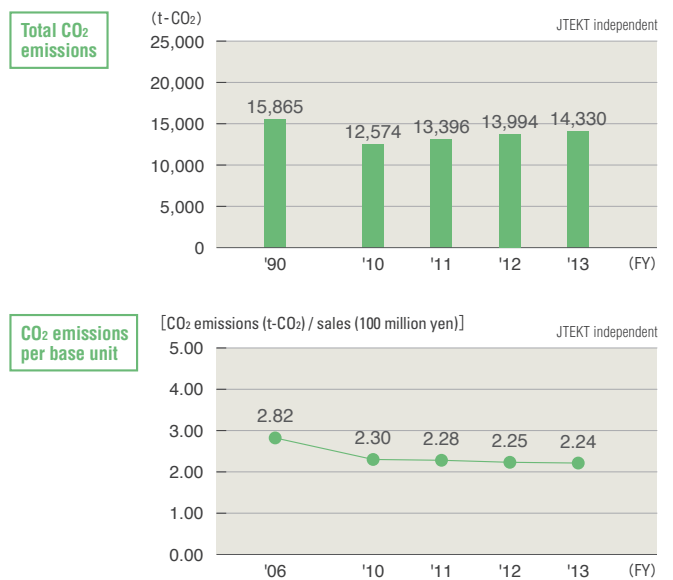
Reducing CO₂ emissions in logistics

Reduction of CO₂ through integrating product delivery shipments

In FY2013, the CO₂ emission base unit was approximately 0.5% less than the previous year at 2.24 tons/100 million yen. By integrating product delivery shipments, JTEKT reduced annual CO₂ by 70 tons. We will continue to reduce CO₂ in the future through further integration.

▶ Figure -03

Transition of total and per base unit CO₂ emissions in logistics



Effective use of resources

Social background

In pursuit of the sustainable development of the world, resource conservation is gaining in importance. Since environmental problems are worsening due to the disposal of products and packaging material after use, companies are required to increase efforts such as the reduction of raw materials consumption, recycling of parts, and suppression of waste generation.

JTEKT's concept

Responsibility as a manufacturer

At JTEKT, we consider the effective use of resources as one of the responsibilities of an environmentally-friendly manufacturer. Through making improvements and devising ideas for the production processes of each product, we strive to reduce material usage and waste output, as well as reuse and save resources.

Saving resources in production

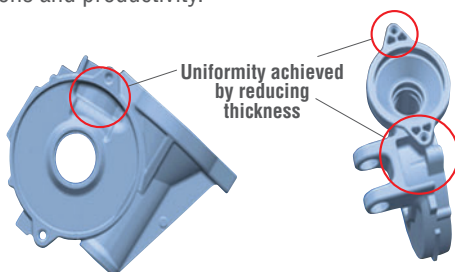
Reduction of primary material consumption

The Design Dept. and Production Engineering Dept. work together from the product design stage to improve design quality, utilizing a computer simulation. By thinning the designs straight down to the details, we manage to balance both the reduction of material consumption and the stabilization of product quality.

Main measures

Reduction of casting product materials

In developing a worm housing (a device protection part) for column-type electric power steering, product weight and material consumption have been reduced by making the housing thin and even, and decreasing allowances while maintaining product functions and productivity.



Material consumption 9% reduction

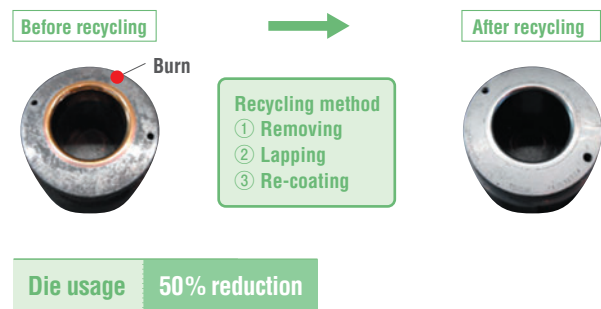
Reduction of secondary material consumption

We succeeded in reducing consumption by revising the material, shape, hardness and other specs of secondary material such as grinding wheels, cutting tools and dies and further increasing their durability. Also, we strove to promote recycling by reusing oil, grinding wheels, cutting tools and jigs.

Main measures

Reduction of usage through recycling of dies and jigs

Dies are used for the forging press. Traditionally, dies that have reached the end of their service life due to burns, damages, etc. are disposed. Usage has been reduced, however, since dies are now able to be replaced at an appropriate time, by polishing damages, removing burns, and lapping and re-coating the dies.



Effective use of resources

Waste reduction

100% recycling rate achieved

▶ Figure-01

In order to effectively utilize all industrially discharged materials, including waste, as resources, JTEKT has committed to the goal of a 100% recycling rate. As a result, we succeeded in recycling all discharged materials in November 2012 and achieved a 100% recycling rate in FY2013. We will continue to further promote 3R and engage in activities to reduce our overall waste output, including those products recycled for profit.

Main measures

Domestic group company	Koyo Heat Treatment Co., Ltd.
------------------------	-------------------------------

Zero discharge of concentrated liquid waste

Koyo Heat Treatment Co., Ltd. has actively committed to reducing industrial waste since FY2007 and succeeded in decreasing the total industrial waste output to 49 tons in FY2012, a 77% reduction compared with FY2007.

Analyzing the total industrial waste output in FY2012 revealed that the largest output came from concentrated liquid waste, with the total amounting to 20 tons, accounting for 41% of the total output. To further promote reduction, we aimed to decrease concentrated liquid waste by employing a new method that utilized the environmentally-friendly heat generated by bacteria, starting from October 2013. Although test results showed that a 3.6 ton reduction was achieved in six months, we did not officially implement it since more man-hours and space were required. We will continue to try new technologies and promote measures for continuous improvement.

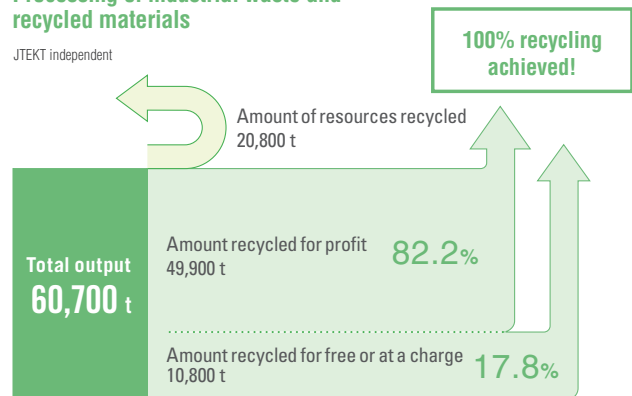


Bacteria treatment tank

▶ Figure-01

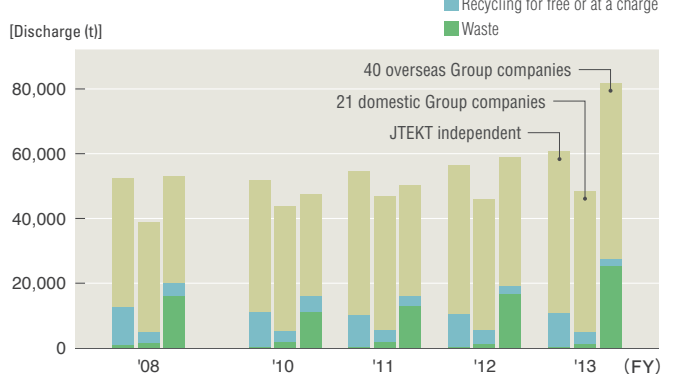
Processing of industrial waste and recycled materials

JTEKT independent



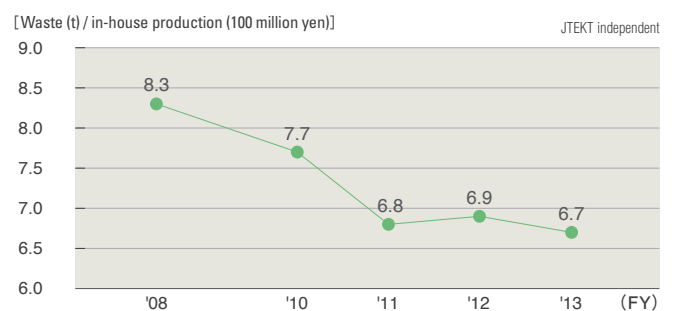
* Amount handled externally (incineration waste)
* Zero direct landfill waste

Transition in discharge amount

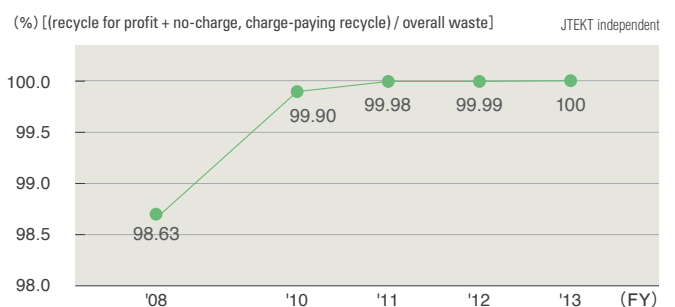


* There were 17 domestic Group companies before FY2011 and 32 overseas Group companies before FY2009.

Yearly transition of waste base unit



Transition of recycle percentage



Eiichi Nakamori
Koyo Heat Treatment Co., Ltd.
Administration Dept.

My
CSR



Introducing a new technology to promote waste reduction

Koyo Heat Treatment, Co., Ltd. is a company specializing in heat treatment, established in 1938. We obtained ISO14001 in 2007, and all employees are working together for energy conservation and waste reduction. In particular, the waste output in FY2012 was decreased by a quarter compared with FY2007, by separating and recycling waste. Aiming for further improvement in FY2013, we attempted to implement a new technology using bacteria. We will continue to try new technologies to utilize resources effectively.

Effective use of resources

Reduction of packaging material

Reducing packaging and packing material

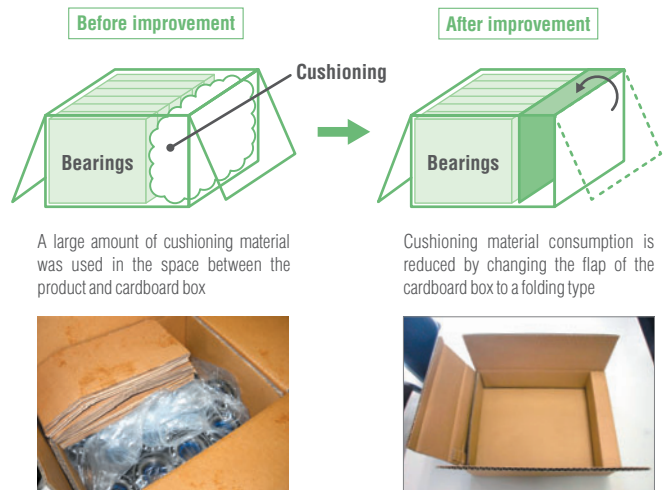
▶ Figure-01

In order to effectively use resources, JTEKT has established targets for packaging and packing material individually for wood and paper, and promotes simpler, returnable and reusable packaging. In wooden packaging, we have increased our use of returnable pallets and are promoting use of simpler wooden boxes. For paper packaging, we are engaging in various action such as shifting from disposable cardboard to returnable plastic containers, revising excessive packaging, and reducing the amount of cushioning material used by adopting cardboard boxes appropriate for the product size.

Main measures

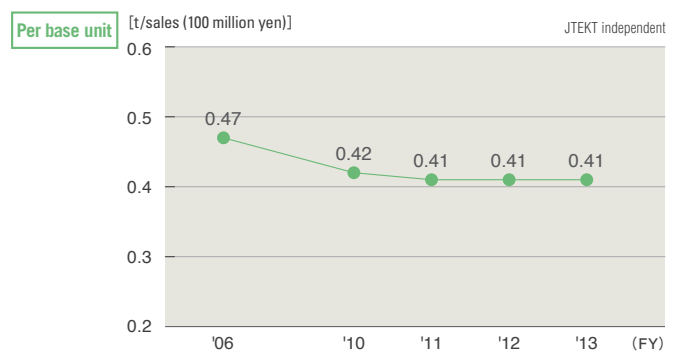
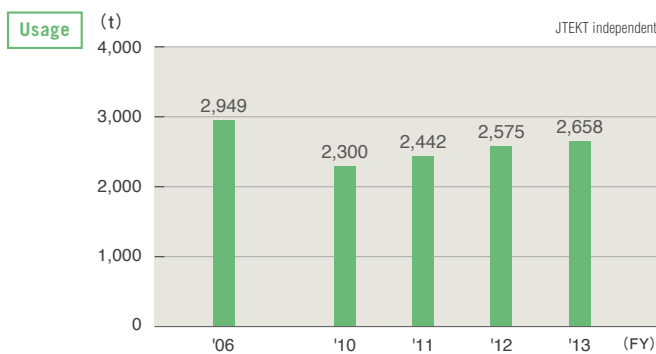
Revising excessive packaging of bearing products

By changing the cushioning material in cardboard boxes, we have reduced cushioning material consumption for bearing products by 3 tons per annum.

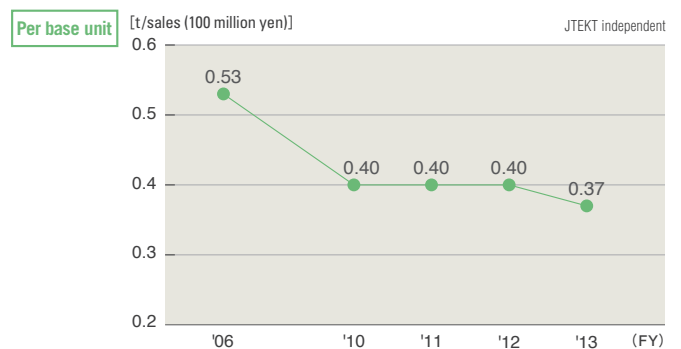
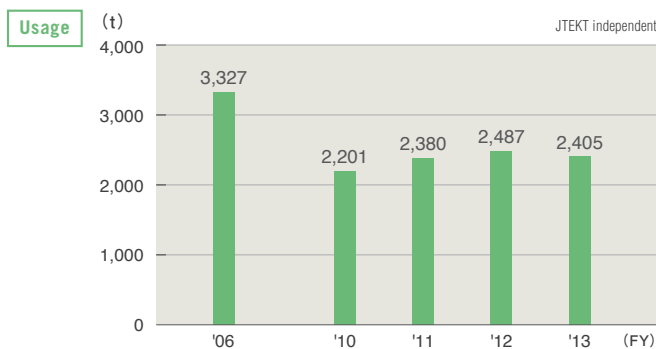


▶ Figure-01

Transition of wood packaging usage and per base unit



Transition of paper packaging usage and per base unit



Effective use of resources

Reduction of water usage

Promoting effective water usage

▶ Figure-01

To reduce the usage of water, a precious resource, JTEKT engages in activities to decrease wasteful usage and recycle water. In FY2013, we engaged in activities to improve the water usage base unit and water usage by more than 1% compared with FY2012, resulting in a 9.5% improvement in the base unit (170 m³/100 million yen) and a 6.3% reduction in usage (176,000 m³), including the increase in recycling to 786,000 m³.

We have already achieved our planned target for FY2014, an improvement 2% higher than FY2012. We will therefore continue activities toward a target of 0.5% or higher improvement compared with FY2013 results.

▶ Figure-01

Yearly transition of overall and base unit water usage



* There were 17 domestic Group companies before FY2011 and 32 overseas Group companies before FY2009.

Control and reduction of environmentally burdensome substances

Social background

More and more action is being taken to reduce the usage and discharge of environmentally burdensome substances which can negatively impact the planet's ecosystems and people's health. Society demands that corporations take autonomous action that goes beyond abiding by regulations, in order to protect the health of their employees and the community, and to maintain and expand their operations.

JTEKT's concept

For the reduction of environmentally burdensome substances

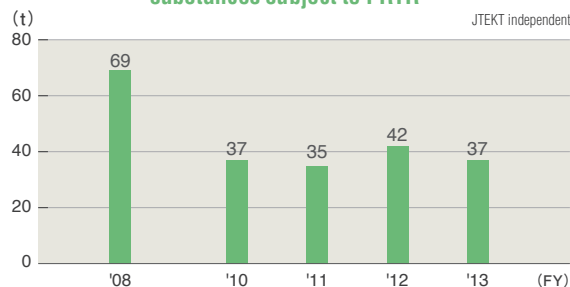
For JTEKT, who aims to be a "monozukuri company gentle on the planet", reduction of environmentally burdensome substances in production activities is one of our greatest social commitments. It goes without saying that we will observe laws and regulations, but we are also actively working to reduce output of environmentally burdensome substances to alleviate our impact on the environment as much as possible.

Control and reduction of chemical substances

Reduction of substances subject to PRTR ▶ Figure-01

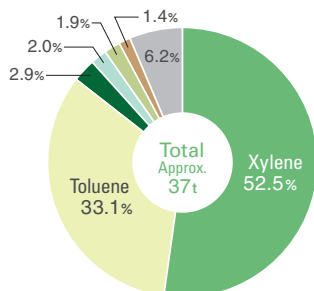
JTEKT is taking action to reduce the impact of chemical substances released into the environment from production activities on people's health and the environment. By reducing equipment through the consolidation and effective utilization of production lines, taking measures to prevent oil leakage, decreasing models that require coating through design change, and implementing powder coating,

▶ Figure-01 Yearly transition release and transfer breakdown of substances subject to PRTR



Release and transfer breakdown of substances subject to PRTR for FY2013

- 2-Amino-Ethanol
- Manganese and its compounds
- 1,3,5-trimethylbenzene
- Boron and its compounds
- Others



JTEKT is promoting reduction of the release and transfer of PRTR (*1) recognized substances.

*1 PRTR Pollutant Release and Transfer Register is a system to collect and disseminate information on environmental releases and transfer of toxic chemicals from industrial and other facilities.

Soil and groundwater measures (continued report)

Since 1998, JTEKT's Kariya and Okazaki plants have implemented ongoing measures to prevent external leaks and to purify groundwater of trichloroethylene, a substance previously used in detergent, etc. They do this using a pumping and aeration system (*2). In addition, since FY2004, the Okazaki plant has used a microbial purification system (*3) which injects nutritional supplements as part of their purification measures. JTEKT reports our groundwater measurement results to government agencies and provides local residents with explanations in community discussions. [→ S_15 Related article](#)

*2 Pumping and aeration system Groundwater is pumped up and sprayed and air is blown on it from below to aerate and separate organic solvents, which are made to adhere to activated carbon for removal.

*3 Microbial purification system This is a method of restoring contaminated environments by utilizing microbial function. The purification capability of microbes living in the environment is raised by injection of nutrients, etc.

Trichloroethylene measurement values

Environmental standard: 0.03 mg / ℓ (mg / ℓ)

Plants	Maximum measurement value in groundwater		
	FY2012	FY2013	Status
Kariya	0.552	0.772	Purifying
Okazaki	Less than 0.001	0.032	Purifying

* For plants other than the above, no trichloroethylene was detected in measurements taken in wells around the plant borders.

Proper storage and control of PCB devices



Status of PCB device treatment (Kokubu plant)

The Act on Special Measures concerning the Proper Treatment of Polychlorinated Biphenyl Waste requires the storage and notification of devices containing PCB (polychlorinated biphenyl), widely used as an insulating oil. JTEKT appropriately stores such devices and notifies government agencies in accordance with this Act. In addition, by FY2013 we rendered 199 high pressure condensers with highly concentrated PCB levels harmless through PCB treatment at JESCO (Japan Environmental Safety Corporation). We plan to complete this on the remaining high pressure condensers by the end of FY2014. JTEKT will continue to properly store 5,200 stable devices since the nation's treatment framework has not been clarified. In FY2014, we plan to treat 126 stable devices in the Tokushima plant, whose treatment framework has been clarified.

Response to devices with minute amounts of PCB

JTEKT properly stores electrical devices in which minute amounts of PCB were detected as well as devices with highly concentrated PCB. Electrical devices were previously judged not to contain PCB. Currently, the number of certified facilities for detoxifying treatment of minute amounts of PCB waste is increasing. We will promote systematic treatment after completing treatment on devices with highly concentrated PCB.

Biodiversity conservation

Social background

The diversity of living creatures on this planet is rapidly depleting, for reasons such as habitat loss resulting from the spreading destruction of nature. Corporate activities are possible thanks to the blessings of nature, but at the same time impact biodiversity greatly. That is why it is important that corporations are proactively involved in biodiversity conservation activities such as protecting the natural habitat.

JTEKT's concept

Aiming for harmony with biodiversity

JTEKT believes biodiversity conservation to be a critical social issue supporting life and lifestyle. As such, each and every employee participates in environmental conservation activities based on the JTEKT Group Environmental Vision, to achieve harmony between our business activities and biodiversity.

Actions for Biodiversity Conservation

Under the Biodiversity Conservation Action Guideline ▶ Figure-01

In order to reduce the environmental burden created by our business activities and consider biodiversity, JTEKT established a Biodiversity Conservation Action Guideline in March of 2011 based on the 2015 Environmental Action Plan of the JTEKT Group Environmental Vision. This guideline was established with reference to the Ministry of the Environment's Guidelines for Private Sector Engagement in Biodiversity and we will continue to investigate making quantifiable evaluations relating to biodiversity conservation in the future.

▶ Figure-01 Biodiversity Conservation Action Guideline

Relationship with business activities

- Raw material procurement ● Liaise with business partners to protect biodiversity.
- Soil usage ● Through greenifying our plants, etc., we are engaging in activities to protect ecosystems which contribute to biodiversity.
- Production activities ● With activities such as preventing global warming by developing innovative techniques and equipment, effective resource usage, reduction of environmentally burdensome substances and so on, we aim to succeed at both biodiversity and corporate activities.
● We work hard to quantitatively appraise the impact our business activities have on biodiversity.
- Product development ● Based on life-cycle assessment approach, JTEKT develops and designs top-class environmentally-friendly products and reduces impact on biodiversity.

Promotion of socially contributing activities benefiting biodiversity conservation

- Proactively participate in socially contributing activities through cooperation with councils and affiliated companies.

Training, awareness activities and information-sharing

- Raise employee awareness of biodiversity conservation through environmental training.
- Use the CSR report as a tool to communicate our activities towards biodiversity conservation with our stakeholders and communities.

Major activities in FY2013

Friendly walk on the beach (Toyohashi plant) ★ **New!**

It is often said that the number of sea turtles landing on the beach and laying eggs is decreasing year by year. One of the reasons for the decrease is spawning habitat degradation due to large amounts of garbage drifting to the beach. On October 27th, with the goal of protecting sea turtles and beautifying the community, the Toyohashi plant co-hosted a "friendly walk on the beach" with an NPO, and more than 100 participants cleaned the coast. A lecture on sea turtles was given by the NPO, providing a valuable opportunity to learn the importance of biodiversity conservation.



→ [S_16](#) Related article



Friendly walk on the beach (Toyohashi)

Biodiversity conservation

Woodland conservation activities (Okazaki plant) **New!**

In an effort to conserve biodiversity, since February 2014, the Okazaki plant has been engaging in the “Okazaki Eco-Education Forest”, woodland conservation activities such as maintaining bamboo groves, repairing walking paths, and creating biotopes.

The first activity for wooded area conservation was held on February 12th, in which we cut (thinned) bamboo trees with the Okazaki City Hall staff. Trees cut as a result of bamboo grove maintenance will be used for children’s craft making at a nature experience workshop and bamboo charcoal making, and used as materials in creating bamboo brooms. We will continue these seasonal woodland conservation activities to contribute to forest preservation in Okazaki city.

→ [S_18](#) Related article

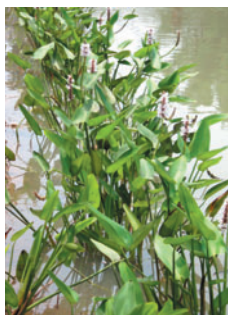


Woodland conservation activities (Okazaki)

Creating a workplace conscious of the natural environment (JRDC: China) **New!**

In July 2013, a new office building of JRDC (China) in Wuxi, Kiangsu China was completed. This environmentally-friendly building has solar and small wind power generation facilities, effectively utilizes geothermal energy, and recycles rainwater. The building also has a biotope, providing an opportunity for employees to have contact with nature. Just after the building was completed, dragonflies were observed flying in the biotope. As a result of planting aquatic plants typical of the region, we now see frogs, water striders, and other creatures inhabiting the biotope. Employees feel the importance of nature by hearing the sound of frogs and seeing dragonflies at lunchtime or when coming to and leaving work. We will continue to raise environmental awareness within the employees and contribute to the global environment.

→ [\[Message\] P12](#) Related article



Biotope established in the new office building (JRDC: China)

Appendix

Appendix-01 The scope of consolidated environmental management

Europe

- 14 production companies
- JTEKT AUTOMOTIVE UK LTD. (England)
- KOYO BEARINGS (EUROPE) LTD. (England)
- JTEKT TORSEN EUROPE S.A. (Belgium)
- KOYO BEARINGS DEUTSCHLAND GMBH (Germany)
- JTEKT HPI S.A.S. (France)
- JTEKT AUTOMOTIVE LYON S.A.S. (France)
- JTEKT AUTOMOTIVE DIJON SAINT-ETIENNE S.A.S. (France)
- KOYO BEARINGS MOULT SAS (France)
- KOYO BEARINGS VIERZON MAROMME SAS (France)
- JTEKT AUTOMOTIVE CZECH PLZEN, S.R.O. (Czech Republic)
- JTEKT AUTOMOTIVE CZECH PARDUBICE, S.R.O. (Czech Republic)
- KOYO BEARINGS CESKA REPUBLIKA S.R.O. (Czech Republic)
- KOYO ROMANIA S.A. (Romania)
- KOYO BEARINGS ESPANA S.A. (Spain)

Asia / Oceania

- 6 production companies
- JTEKT (THAILAND) CO., LTD. (Thailand)
- JTEKT AUTOMOTIVE (THAILAND) CO., LTD. (Thailand)
- KOYO MANUFACTURING (PHILIPPINES) CORPORATION (Philippines)
- JTEKT AUTOMOTIVE (MALAYSIA) SDN. BHD. (Malaysia)
- JTEKT SONA AUTOMOTIVE INDIA LTD. (India)
- KOYO JICO KOREA CO., LTD. (Korea)

China

- 11 production companies
- JTEKT AUTOMOTIVE (TIANJIN) CO., LTD.
- JTEKT AUTOMOTIVE (FOSHAN) CO., LTD.
- JTEKT STEERING SYSTEMS (XIAMEN) CO., LTD.
- JTEKT DALIAN INNOVATION AUTOMOTIVE CO., LTD.
- WUXI KOYO BEARING CO., LTD.
- DALIAN KOYO WAZHOU AUTOMOBILE BEARING CO., LTD.
- KOYO BEARING DALIAN CO., LTD.
- KOYO LIOHO (FOSHAN) AUTOMOTIVE PARTS CO., LTD.
- KOYO AUTOMOTIVE PARTS (WUXI) CO., LTD.
- YUBEI KOYO STEERING SYSTEMS CO., LTD.
- KOYO NEEDLE BEARINGS (WUXI) CO., LTD.

Japan

- 13 JTEKT bases
- 21 domestic group production companies
- Koyo Machine Industries Co., Ltd. (Osaka)
- Toyooki Kogyo Co., Ltd. (Aichi)
- Koyo Sealing Techno Co., Ltd. (Tokushima)
- CNK Co., Ltd. (Aichi)
- Koyo Thermo Systems Co., Ltd. (Nara)
- Koyo Electronics Industries Co., Ltd. (Tokyo)
- Daibea Co., Ltd. (Osaka)
- Utsunomiya Kiki Co., Ltd. (Tochigi)
- HOUKO Co., Ltd. (Aichi)
- Toyoda Van Moppes Ltd. (Aichi)
- Koyometaltec Co., Ltd. (Mie)
- KJK Co., Ltd. (Tokushima)
- NIPPON NEEDLE ROLLER MFG. Co., Ltd. (Mie)
- Koyo Heat Treatment Co., Ltd. (Osaka)
- FORMICS Co., Ltd. (Aichi)
- Taiho Co., Ltd. (Kagawa)
- NAKATETSU Co., Ltd. (Osaka)
- Eiko Seimistu Co., Ltd. (Kagawa Prefecture)
- Tokio Seiko Corporation (Tokyo Prefecture)
- Yamato Seiko Co., Ltd. (Nara Prefecture)
- JTEKT YAMAGATA Corporation (Yamagata Prefecture)

North America / South America

- 9 production companies
- JTEKT AUTOMOTIVE TENNESSEE-VONORE LLC (America)
- JTEKT AUTOMOTIVE TENNESSEE-MORRISTOWN, INC. (America)
- JTEKT AUTOMOTIVE TEXAS, L.P. (America)
- JTEKT AUTOMOTIVE SOUTH CAROLINA, INC. (America)
- KOYO BEARINGS NORTH AMERICA LLC (America)
- KOYO BEARINGS CANADA INC. (Canada)
- JTEKT AUTOMOTIVA BRASIL LTDA. (Brazil)
- TOYODA KOKI DO BRASIL INDUSTRIA E COMERCIO DE MAQUINAS, LTDA. (Brazil)
- JTEKT AUTOMOTIVE ARGENTINA S.A. (Argentina)

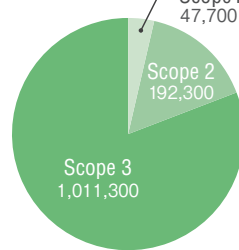
Appendix-02

CO₂ conversion coefficients to calculate CO₂ emissions volume

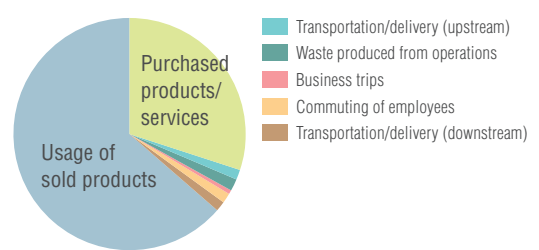
Electricity	0.3707 kg-CO ₂ /kWh
Heavy oil A	2.6958 kg-CO ₂ /ℓ
Kerosene	2.5316 kg-CO ₂ /ℓ
Propane gas	3.0040 kg-CO ₂ /kg
City gas	2.1570 kg-CO ₂ /Nm ³

The CO₂ conversion coefficients were set by the Japan Federation of Economic Organizations (1990) and are used in Japan. Regions outside of Japan use 2001 published values. We fixed electrical conversion coefficients so that the results of our improvements could be evaluated.

CO₂ emissions by scope (t-CO₂)



Scope 3 CO₂ emissions (percentage) by category



Scope 3 CO₂ emissions by category

*1 Calculated based on the amount of steel material purchased *2 Calculated based on steering, drive parts and machine tools

Classification	Category	Emissions	Remarks	Calculation criteria	JTEKT action
Upstream	Purchased products/services *1	305,500	Only some raw materials covered	CO ₂ due to the purchased raw materials, parts manufacture, etc.	Making products smaller/lighter and improving yield
	Capital goods	—	Calculation method under investigation	CO ₂ due to the construction and manufacturing of capital goods	—
	Fuel and energy-related activities not included in Scope 1 and 2	—	Out of scope	CO ₂ due to usage of fuel necessary for heat, etc., purchased by other parties	—
	Transportation/delivery (upstream) *1	12,600	Only some raw materials covered	CO ₂ due to purchasing/logistics of raw materials, parts, etc.	Making products smaller/lighter and improving yield
	Waste produced from operations	18,000		CO ₂ due to transportation/processing of waste	Reducing waste
	Business trips	4,900		CO ₂ due to employee business trips	Utilizing TV/Web conference systems
	Commuting of employees	15,000		CO ₂ due to employees commuting to operation bases	Utilizing the Eco-Commuting System
	Leased assets (upstream)	—	Calculated in Scope 1 and 2	CO ₂ due to operation of leased assets	
Downstream	Transportation/delivery (downstream)	14,300		CO ₂ due to transportation/storage and retail of products	Improving the shape in which products are transported in, combining transportation routes, model shift
	Fabrication of sold products	—	Calculation method under investigation	CO ₂ due to processing of products by the customer	
	Usage of sold products *2	641,000		CO ₂ due to usage of products	Developing environmentally-friendly products
	Disposal of sold products	—	Calculation method under investigation	CO ₂ due to transportation/processing upon disposal of products	Making products smaller/lighter
	Leased assets (downstream)	—	Calculation method under investigation	CO ₂ due to operation of leased assets	
	Franchise	—	N/A	CO ₂ produced by franchise members	—
	Investment	—	N/A	CO ₂ relating to investment operation	—
Total		1,011,300 (t-CO₂)			