

# Environmental Data

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In our work to reduce environmental impacts, we are promoting energy saving, the prevention of global warming, waste reduction, and chemical substance reduction. The table below summarizes the energy and resource inputs and outputs associated with our FY2003 business activities by internal companies and major affiliates. Information about the environmental impacts and products of our major production works is given on pages 25 and 26.

## Internal Companies/Affiliates

\*1. Performance items in the table below were taken from "State of Activities for Reduction of Environmental Impact" contained in the Environmental Reporting Guidelines of the Ministry of the Environment. Environmental data is given in the horizontal direction for internal companies as well as for a single group consisting of the head offices, branch offices and technical institutes.

\*2. The discharge concentration of regulated substances and the generation of noise, vibrations and odors are listed as "Compliant" or "No Compliant".

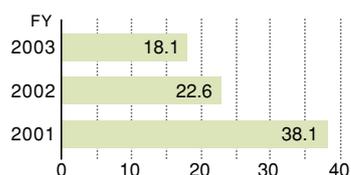
\*3. "-" shows that data was unavailable. "0" means the measured data was zero.

\*4. "Not applicable" means there were no regulated facilities that caused environmental impact of this type.

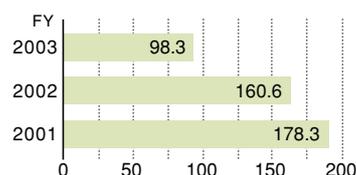
\*5. Data in [ ] is the percentage of increase/decrease from performance data of the previous year. Provided only where last year's data was available.

Performance Items*1		Units	Rolling Stock, Construction Machinery & Crushing Plant Company	Aerospace Company	Gas Turbines & Machinery Company		
Environmental Impacts from Material/Energy Input	Total material input: Metals (steel, aluminum, copper, etc.)	ton	49,101	8,776	17,701		
	Recycled material amount	ton	4,070	0	0		
	Total energy consumption	Electricity	TJ	469	791	467	
		Fuel	TJ	145	448	491	
		Total	TJ	614	1,239	958	
	Renewable energy consumption	TJ	0	0	0		
	Water consumption	m <sup>3</sup>	517,447	3,758,834	629,863		
	Recycled water amount	m <sup>3</sup>	128,794	155,798	0		
	Recycled resource and recycled parts input	ton	0	0	0		
	Amount of hazardous material handled	kg	1,362,095	128,869	22,499		
Upstream Environmental Impacts	Green purchasing	1 mil yen	41	430	20		
Environmental Impacts from Output of Refuse	Emissions to Air	Greenhouse gas emissions	t—CO <sub>2</sub>	28,126	71,985	41,579	
		Ozone depleting substance emissions	ODP ton	0	4	0	
		SOx emissions	kg	4,505	9,227	3,993	
		NOx emissions	kg	5,748	15,522	50,279	
		Soot and dust emissions	kg	460	872	764	
		VOCs emission	kg	191,900	147,343	16,101	
		PRTR regulated substance emissions	kg	192,129	65,944	17,033	
		Concentration of restraint substances when emitted	SOx	PPM	Compliant*2	Compliant*2	Compliant*2
			NOx	PPM	Compliant*2	Compliant*2	Compliant*2
			Dust	g/m <sup>3</sup> N	Compliant*2	Compliant*2	Compliant*2
	Dioxins		ng/m <sup>3</sup> N	Not applicable*4	Not applicable*4	Not applicable*4	
		Benzene	mg/m <sup>3</sup> N	Not applicable*4	Not applicable*4	Not applicable*4	
	Noise and vibration	dB	Compliant*2	Compliant*2	Compliant*2		
	Odor	m <sup>3</sup> /min	Compliant*2	Compliant*2	Compliant*2		
	Emissions to "Water and Soil"	Total amount of drainage	m <sup>3</sup>	260,258	2,240,000	129,492	
PRTR regulated substance discharge		kg	0.0	162	0		
COD discharge		kg	512	9,000	31		
Nitrogen discharge		kg	1,271	15,200	29		
Phosphorus discharge		kg	52	444	1		
	Density of emissions of substances under drainage control	mg/L	Compliant*2	Compliant*2	Compliant*2		
Emissions of Wastes	Total amount of wastes	ton	13,116	3,509	4,192		
	Reused resources	ton	5,457	1,894	0		
	Recycled resources	ton	7,153	793	3,685		
	Resources subject to thermal energy recovery	ton	387	431	276		
	Amount of wastes incinerated	ton	23	139	184		
	Final disposal wastes	ton	61	194	47		
	Specially controlled industrial waste	kg	95,111	140,750	105		
	PRTR substance transfer	kg	90,810	52,175	2,805		
Downstream Environmental Impacts	Environmental impact caused by product characteristics Production and sale of environmental impact reducing products		P11—18 ———— *3	P11—18 ———— *3	P11—18 ———— *3		
Environmental Impacts from Transportation	CO <sub>2</sub> emission during transport	t—CO <sub>2</sub>	852	291	126		
	NOx emission during transport	kg	5,282	1,455	555		
	Number of eco-vehicle introduced	unit	0	2	5		

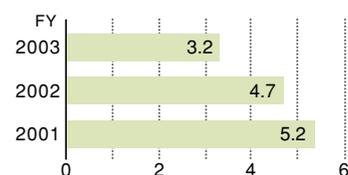
● SOx emission trend (t)



● NOx emission trend (t)



● Dust emission trend (t)



Plant & Infrastructure Engineering Company	Consumer Products & Machinery Company	Head Offices, Branch Offices & Technical Institutes	Kawasaki Shipbuilding Corporation	Kawasaki Precision Machinery Ltd. (KPM)	Total	Comparison with Previous Year
26,984	166,280	98	170,854	26,641	466,435	
0	736	0	2,120	0	6,926	
122	704	87	560	287	3,487	[−6.7%]
23	784	57	350	185	2,482	[+18.1%]
144	1,488	144	910	472	5,969	[+2.2%]
0	0	0	0	0	0	
71,722	1,036,900	76,488	834,354	230,074	7,155,682	[+2.3%]
30,013	30,320	0	0	11,780	356,705	[+21.3%]
10	0	0	0	0	10	
40,954	638,349	0	764,548	37,223	2,994,536	
399	259	9	9	19	1,185	
4,738	59,882	5,416	44,005	17,151	272,883	[+6.2%]
0	0	0	0	0	4	
0	278	—*3	97	13	18,113	[−19.8%]
159	18,090	—*3	365	8,178	98,342	[−38.8%]
0	797	—*3	119	175	3,187	[−32.1%]
38,038	113,795	—*3	611,863	27,606	1,146,647	
38,038	143,233	0	611,863	27,606	1,095,846	
Compliant*2	Compliant*2	Not applicable*4	Compliant*2	Compliant*2	Compliant*2	
Compliant*2	Compliant*2	Not applicable*4	Compliant*2	Compliant*2	Compliant*2	
Compliant*2	Compliant*2	Not applicable*4	Compliant*2	Compliant*2	Compliant*2	
Not applicable*4	Compliant*2	Not applicable*4	Not applicable*4	Not applicable*4	Compliant*2	
Not applicable*4	Not applicable*4	Not applicable*4	Not applicable*4	Not applicable*4	Not applicable*4	
Compliant*2	Compliant*2	Not applicable*4	Compliant*2	Compliant*2	Compliant*2	
Compliant*2	Compliant*2	Not applicable*4	Compliant*2	Compliant*2	Compliant*2	
13,734	620,671	0	0	44,446	3,308,601	[+5.4%]
0	2,829	—*3	0	0	2,991	[−9.2%]
41	5,627	0	1,034	337	16,582	[−1.2%]
199	13,392	—*3	—*3	369	30,459	
30	532	—*3	—*3	38	1,096	
Compliant*2	Compliant*2	Compliant*2	Compliant*2	Compliant*2	Compliant*2	
3,689	16,075	222	22,164	3,430	66,395	[−0.8%]
2,951	5,209	73	13,197	449	29,229	
409	9,393	15	5,645	2,781	29,874	[+9.8%]
328	1,184	75	225	200	3,106	
0	30	0	1,725	0	2,102	[−140.8%]
0	259	58	1,372	0	1,991	[−51.3%]
4	712,698	0	80,447	8,070	1,037,185	[+6.2%]
2,916	41,407	0	46,917	8,645	245,675	
P11—18	P11—18	P11—18	P11—18	P11—18	P11—18	
—*3	—*3	—*3	—*3	—*3	—*3	
298	21	43	3,195	72	4,897	
1,899	141	151	21,558	323	31,362	
4	43	0	0	0	54	

# Environmental Data

## Production Base

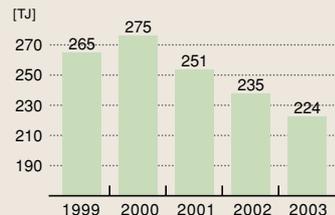
### Yachiyo Works



RPF (fuel derived from solidified waste paper and plastic) production facilities

● Major products: RPF production facilities, crushers, pulverizers, cast steel products, cast iron products  
● Address: 1780, Kamikoya, Yachiyo, Chiba 276-0022 Japan

#### Energy consumption



#### Amount of waste discharged, amount recycled, recycling rate



#### Amount released into the atmosphere (kg)

SOx	4,474
NOx	5,350
Dust	448

#### Amount released into public water (kg)

COD	134
Nitrogen	378
Phosphorus	43

### Gifu Works

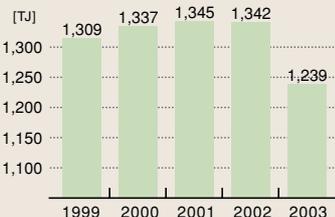
(including Nagoya Works 1 and Nagoya Works 2)



BK117 C-2 helicopter

● Major products: Aircraft (including helicopters), spacecraft, aviation-related facilities and equipment  
● Address: 1, Kawasaki-cho, Kakamigahara, Gifu 504-8710 Japan

#### Energy consumption



#### Amount of waste discharged, amount recycled, recycling rate



#### Amount released into the atmosphere (kg)

SOx	9,227
NOx	15,522
Dust	872

#### Amount released into public water (kg)

COD	9,000
Nitrogen	15,200
Phosphorus	444

### Kobe Works

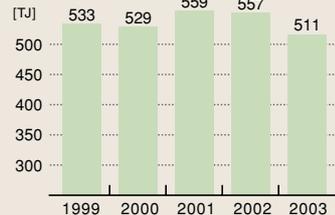
(including Kawasaki Shipbuilding Corporation)



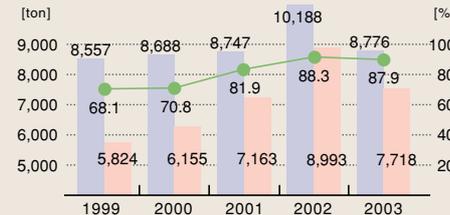
Two-cycle marine diesel engine

● Major products: Marine vessels, offshore structures, submarines, land & marine turbines and diesel engines  
● Address: 3-1-1, Higashikawasaki-cho, Chuo-ku, Kobe, Hyogo 650-8670 Japan

#### Energy consumption



#### Amount of waste discharged, amount recycled, recycling rate



#### Amount released into the atmosphere (kg)

SOx	3,970
NOx	50,215
Dust	769

#### Amount released into public water (kg)

COD	34
Nitrogen	30
Phosphorus	0

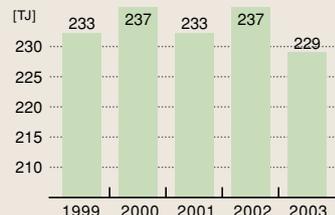
### Hyogo Works



Magnetically levitated linear motor-driven high-speed train (for JR)

● Major products: Rolling stock, automated guideway transport, platform doors  
● Address: 2-1-18, Wadayamadori, Hyogo-ku, Kobe, Hyogo 652-0884 Japan

#### Energy consumption



#### Amount of waste discharged, amount recycled, recycling rate



#### Amount released into the atmosphere (kg)

SOx	10
NOx	431
Dust	9

#### Amount released into public water (kg)

COD	23
Nitrogen	21
Phosphorus	1

### Akashi Works

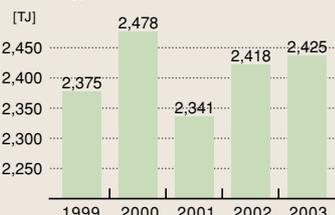
(including Seishin Works)



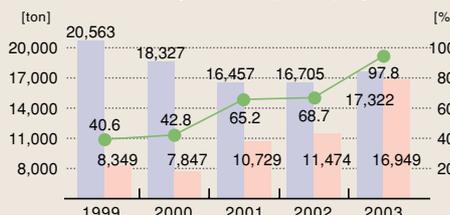
Ninja ZX-10R

● Major products: Motorcycles, robots, jet engines, and general-purpose gas turbines  
● Address: 1-1, Kawasaki-cho, Akashi, Hyogo 673-8666 Japan

#### Energy consumption



#### Amount of waste discharged, amount recycled, recycling rate



#### Amount released into the atmosphere (kg)

SOx	278
NOx	18,090
Dust	797

#### Amount released into public water (kg)

COD	5,627
Nitrogen	13,392
Phosphorus	532

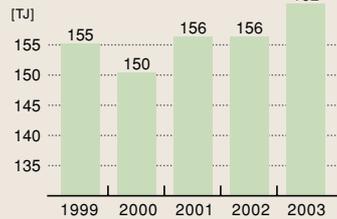
## Banshu Works

- Major products: Construction machinery, cargo handling machinery
- Address: 2680, Oka, Inami-cho, Kako, Hyogo 675-1113 Japan

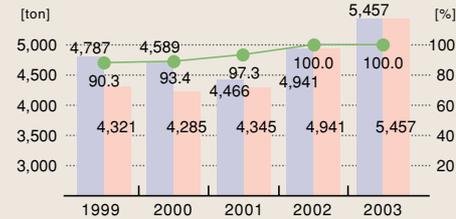


Wheel loader

### ● Energy consumption



### ● Amount of waste discharged, amount recycled, recycling rate



### ● Amount released into the atmosphere (kg)

SOx	NA
NOx	NA
Dust	NA

### ● Amount released into public water (kg)

COD	443
Nitrogen	350
Phosphorus	16

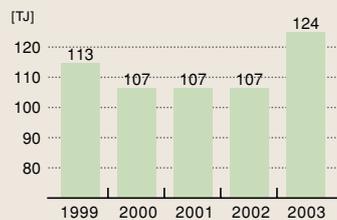
## Harima Works

- Major products: Plants, environmental protection facilities, boilers, construction machinery, steel structures
- Address: 8, Nijijima, Harima, Kako, Hyogo 675-0155 Japan

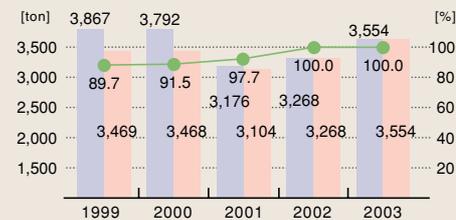


Detachable slurry triple station shield machine

### ● Energy consumption



### ● Amount of waste discharged, amount recycled, recycling rate



### ● Amount released into the atmosphere (kg)

SOx	NA
NOx	159
Dust	NA

### ● Amount released into public water (kg)

COD	41
Nitrogen	199
Phosphorus	30

## Nishi-Kobe Works

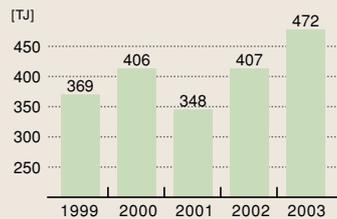
(Kawasaki Precision Machinery Ltd.)

- Major products: Industrial hydraulic devices, marine machinery, and precision equipment/devices
- Address: 234, Matsumoto, Hasetani-cho, Nishi-ku, Kobe, Hyogo 651-2239 Japan

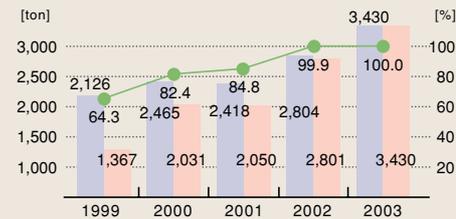


Hydraulic equipment

### ● Energy consumption



### ● Amount of waste discharged, amount recycled, recycling rate



### ● Amount released into the atmosphere (kg)

SOx	13
NOx	8,178
Dust	175

### ● Amount released into public water (kg)

COD	337
Nitrogen	369
Phosphorus	38

## Sakaide Works

(Kawasaki Shipbuilding Corporation)

- Major products: Marine vessels, marine equipment (LNG/LPG carriers, container ships, oil drilling rigs, etc.)
- Address: 1, Kawasaki-cho, Sakaide, Kagawa 762-8507 Japan

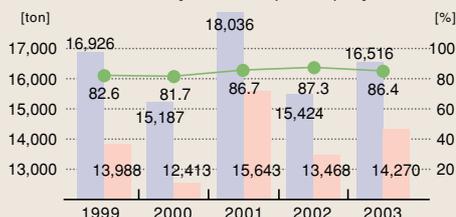


LNG carrier

### ● Energy consumption



### ● Amount of waste discharged, amount recycled, recycling rate



### ● Amount released into the atmosphere (kg)

SOx	97
NOx	365
Dust	119

### ● Amount released into public water (kg)

COD	1,034
Nitrogen	—
Phosphorus	—

### Editor's Note

Thank you for taking the time to read the Kawasaki Environmental Report 2004.

Through this Report, we hope you could duly understand our contributions to communities through our business activities and products, pursuit of which is the most important mission for us as a heavy industry manufacturing business, as well as the environmental protection activities that we have continued steadily at our production bases over many years.

What is your impression? We always welcome feedback from readers. In addition to improving environmental protection activities themselves, we will make further efforts to provide an environmental report that is more appealing and easier-to-read in the future.

### Promise to the Earth



地球が微笑む物づくり