HITACHI
Inspire the Next

Hitachi Appliances Environmental Report 2012

Under the slogan “Hitachi Appliances is the Corporation of Home Appliances and Air Conditioning,” we aspire to be a global company that contributes to environmental conservation through public and personal infrastructure.

At the 2012 United Nations Conference on Sustainable Development (Rio+20)*1, Japan announced that it would implement as “Green Future” Initiatives three measures to contribute to sustainable development: spreading of an environmentally friendly future city to the world, a shift of the global economy toward a green economy, and forming a resilient society in disaster prevention. It was decided that Japan would not participate in the second commitment period of the Kyoto Protocol agreed at the 17th Conference of Parties to the United Nations Framework Convention on Climate Change (COP 17)*2 held in 2011. Nevertheless, Japan will carry on with implementation of greenhouse gas reduction measures in preparation for a new framework to replace the Kyoto Protocol scheduled to go into effect in 2020. Japan is obligated to persevere in efforts to conserve energy.

Operating under the slogan “Hitachi Appliances is the Corporation of Home Appliances and Air Conditioning,” we engage in business activities pertaining to public and personal infrastructure as a member of the Hitachi Group. Against a backdrop of market expansion in developing countries and increasing emphasis on energy conservation, we aspire to be a global company that contributes to environmental conservation by proposing and providing products and solutions that meet the specific requirements of each country and region.

In the field of air conditioning, we strive to both satisfy energy conservation needs and provide comfortable air-conditioned environments by offering a comprehensive line of products for residential, commercial and industrial use. In home appliances, in addition to white goods, we offer products for “all-electric” homes, notably LED lighting, induction heating (IH) cooktops and heat pump water heaters. Furthermore, we have positioned solar power generation systems as a new environmental business sector and are working to support people’s lives under the slogan “eco + α = Hitachi.”

To realize a sustainable society, the Hitachi Group has established as its basic policy for environmental activities the Environmental Vision, which has three key pillars: prevention of global warming, conservation of resources, and preservation of ecosystems. Hitachi Appliances will work to reduce environmental impact across all our business activities in keeping with Hitachi’s corporate philosophy of contributing to society through technology and the Hitachi Group’s Environmental Vi-

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sion, and furthermore, in accordance with international initiatives to achieve a green economy, particularly greenhouse gas emissions reduction. Our environmental impact reduction measures include the development of environmentally conscious products, energy conservation activities at business sites, strengthening of management of environmentally hazardous chemical substances and the recycling and appropriate disposal of waste.

I look forward to receiving from readers of this report frank opinions about our environmental activities.

President & Director

H. Yamamoto

Haruki Yamamoto

*1 Marking the 20th anniversary of the UN Conference on Environment and Development (Earth Summit) in Rio de Janeiro held in 1992, Rio+20 was held in Rio de Janeiro in June 2012 for the purpose of following up on the Earth Summit.

*2 COP 17 was held in Durban, South Africa in November and December 2011. At the conference, discussions were held in preparation for the construction of a new international legal framework in which all major countries will participate. COP 18 is scheduled to be held in Doha, Qatar in November and December 2012.

We are actively creating products that reduce the conserving energy, conserving resources and

Improved energy conservation*1 performance from Frost Recycle Cooling and other original technologies

Refrigerator

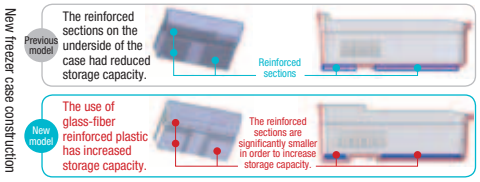
R-C6700(XT)

*1 A comparison of annual power consumption (JIS C 9801-2006) between the previous model R-B6700 and new model R-C6700 is 260kWh and 230kWh, respectively, due to overall effect of several technologies for energy conservation.

Key Features

- **Highest Rated Capacity*2 of 670 litters, and improved freezer and vegetable compartment storage performance**
  The R-C6700, which has the industry's highest rated capacity*2 of 670 liters. There is ample space for cooking pots and large foods items, including plenty of room to store food purchased on the weekend for consumption during the week.

*2 Among home refrigerator-freezers sold in Japan. The R-C6700, as of 13 September, 2012.



Environmental Performance

Energy Conservation
Frost Recycle Cooling uses air cooled by frost forming on the cooling device during operation to cool the refrigerator's interior and vegetable compartment. The use of a new cooling method and flexible vacuum insulation panel reduces annual power consumption.

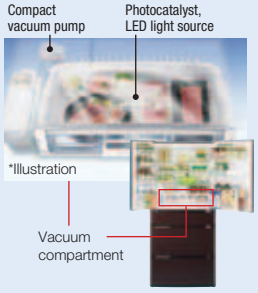
Environment Friendly
The refrigerator utilizes the refrigerant R600a (isobutane), which has a lower impact on global warming than CFC substitutes.

Distinctive Hitachi Technologies

"Sleep Storage"*3

This function improves the storage performance of the vacuum*4 compartment*5. Hitachi's original vacuum compartment maintains air pressure of approximately 0.8 atmospheres in the compartment, minimizing oxidation, and keeping food fresh. A photocatalytic effect generates carbon dioxide that preserves food by "putting it to sleep."

*3 Carbon dioxide delays loss of freshness by suppressing vegetable breathing and inhibiting the action of oxygen on the surface of meat and fish. It does not actually put live fish to sleep.
*4 The term "vacuum" refers to any space with lower-than-atmospheric air pressure. Since the air pressure of approximately 0.8 atmospheres in the low-oxygen chilled compartment is lower than atmospheric pressure, we call it a vacuum.
*5 Comparison of the new R-C6700 and the R-B6700, a 2011 Hitachi model.



A water-saving circulation pump provides excellent water efficiency by circulating water during the wash cycle

Washer-Dryer

Key Features

- **Automatic Cleaning**
  This washer-dryer automatically cleans away sebum dirt and detergent residue that has adhered to the underside of the washing tub and other unseen areas.
- **Water Sensor System**
  A water sensor system adjusts the detergent quantity indicator, water volume and washing time using six sensors.

Environmental Performance

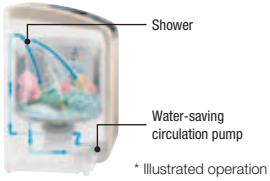
Water Conservation
Unlike conventional washing in a tub filled with water, the laundry method thoroughly cleans with a small amount of water by agitating the clothes up and down and circulating the water. The result is high water efficiency.

BW-D9PV(N)

Distinctive Hitachi Technologies

1 Use of a Water Circulation Pump

These are the only top-loading washer-dryers equipped with a water-saving circulation pump. Two spray nozzles shower water on the clothes, washing them to a brilliant white with less water.

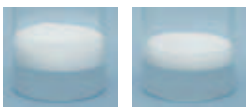


* Illustrated operation

2 Water Sensor System

Sensors check water hardness, laundry characteristics, laundry quantity, water temperature, rinse conditions and spin conditions, then intelligently adjust the detergent quantity indicator, water volume and washing time.

The detergent suds even change according to the hardness of the water!



Hardness 30ppm　Hardness 120ppm

One-touch power saving makes it easier to save energy

Stainless Steel Clean System

Room Air Conditioner

RAS-S40B2(W)

Key Features

- **Power Savings at the Touch of a Button**
  "Look, hear and feel" sensors sensitively detect the movements of people and room conditions at the touch of a button, providing comfort and power savings.
- **Stainless Steel Clean System**
  The use of stainless steel curbs grime and mold. The amount of stainless steel in the upper air duct has been increased by approximately 40%*1.

*1 In the air duct and flap. Compared to the Hitachi RAS-S40A2.

- **Jet Scroll Heating**
  Inverter and compressor improvements have made possible operation at higher rotation speeds. This increases the refrigerant flow rate and boosts heating power.

Environmental Performance

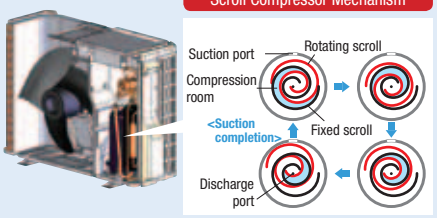
Energy Conservation
These air conditioners are equipped with CV-PAM*2 control and scroll compressors. The use of high-efficiency indoor unit's heat exchanger with fewer dividing parts and high-density outdoor unit's heat exchanger (4.0 to 7.1kW class models) results in energy savings.

*2 Cascade vector control pulse amplitude modulation.

Distinctive Hitachi Technologies

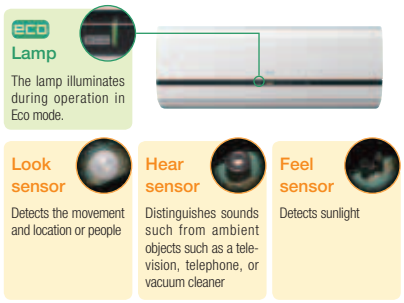
1 Scroll Compressor

Low-Vibration Scroll Compressor Mechanism



Two spiral blades gently perform suction, compression and discharge, delivering powerful and efficient operation.

2 "Look, Hear and Feel" Sensors



A Vacuum Heat Insulation Layer Utilizes the Principle of an Oven to Bring Out All the Sweetness and Flavor of Rice

Induction Heating Rice Cooker

RZ-W2000K(R)

RZ-W2000K(W)

Key Features

- **Pressure and Steam Sinku-neppu**
  We incorporated a vacuum insulation layer to utilize the principle of an oven that seals in heat and cooks at high temperature. The result is sweet, delicious rice.
- **High-Heat Cast Iron Pot**
  The cooker features an iron inner pot for highly efficient induction heating. The wide bottom ensures rapid boiling at the center of the pot and promotes convection flow from the center.
- **Reduced Steam**
  Since the cooker releases nearly no steam, it can be used anywhere.

* The amount of steam released varies according to factors including the surrounding environment.

Environmental Performance

Best-in-Industry*1 Energy Conservation Performance
The vacuum insulation layer, high-heat cast iron pot, steam recycling mechanism and other features save energy.

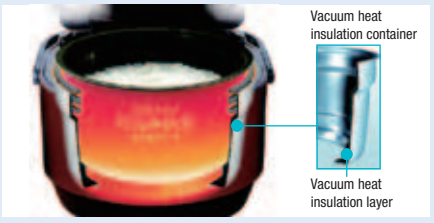
*1 Among induction heating (IH) home rice cookers with cooked rice capacity of from 0.99 liters to less than 1.44 liters, as of 10 September, 2012. Energy Saving Standard Achievement Rate of 126% at the factory settings "White rice (ordinary)" and "Warming."

Power-Saving Warming Mode
The cooker has a power-saving warming feature that utilizes the insulation effect of the vacuum insulation to keep rice warm with nearly no power consumption.

Distinctive Hitachi Technologies

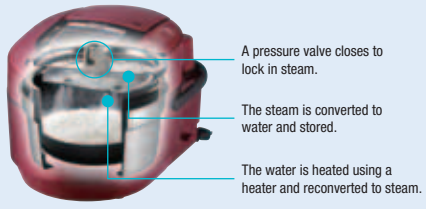
1 Vacuum Heat Insulation Container

The internal surface of the cooker body that holds the inner pot is a stainless steel double-layer vacuum heat insulation container that incorporates the technology used in thermos bottles.



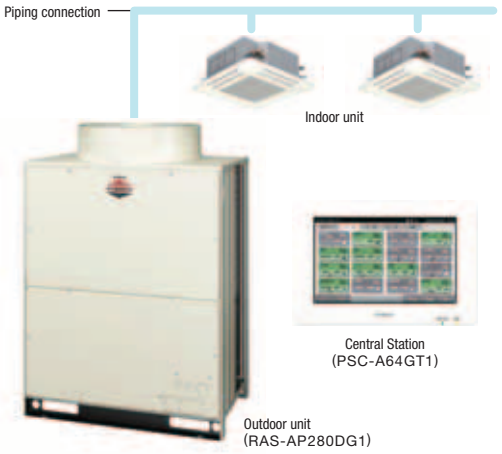
2 Steam Recycling Mechanism

An auto steamer that requires no pressure or water supply stores steam generated during cooking, reconverts it to steam, and recycles it for use in keeping rice warm.



Top-Class Energy Conservation Performance and Power Savings

Multi-Split Air Conditioning System for Buildings



Key Features

High Efficiency

- Improvement in compressor low-speed performance and refrigeration cycle performance has resulted in top-class*1 APF. All models subject to the Law Concerning the Rational Use of Energy*2 meet the standard values for 2015.
- All models deliver average cooling and heating COP of 4.0 or higher.

*1 As of 1 September, 2012. High-efficiency models are rated 140 to 335 APF with 4-way cassette.
*2 Products with capacity of 50.4kW or lower (Excluding hybrid models).

Power Saving

- Scheduled demand control operation using a central station makes power saving easy.

Heat Recovery

- The outdoor units are capable of simultaneous cooling and heating operation and switching between cooling and heating. The simultaneous cooling and heating system improves efficiency by collecting heat at the time of mixed cooling and heating operation.

Environmental Performance

Energy Conservation

- APF 5.5, average cooling and heating COP of 4.0*3.
- Reduction in annual power consumption*4 of approx 46%. From 8,462kWh for conventional model*5, to 4,579kWh for new model.

*3 Value for systems with cooling capacity of 28 kW.
*4 Calculated value for operation under standardized conditions of The Japan Refrigeration and Air Conditioning Industry Association.
*5 Comparison with RAS-J280FS1 of approx. 15 years ago.

Resource Conservation

- Weight reduction through the use of thin-walled, lightweight sheet metal parts.

Environment Friendly

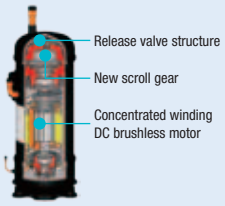
- Use of the refrigerant R410A, which does not damage the ozone layer.
- Reduced refrigerant use*6.

*6 At maximum pipe length of 165 meters, 19% reduction of refrigerant.

Distinctive Hitachi Technologies

New Model High-APF Compressor

The use of a new scroll gear, release valve structure, and other innovations has reduced pressure loss in the compressor. A high-efficiency, concentrated winding DC brushless motor increases low-speed motor efficiency.



Excellent partial-load performance combined with power-saving and energy conservation functions

Inverter Control Centrifugal Chiller

HC-ItF35J40S/SV-SG
* The above photo is inverter control type.

Key Features

Marked Improvement*1 in Partial Load Performance

Improvements in the control method (such as optimized liquid level control) and the use of a newly developed economizer (cyclone method) substantially increase*1 partial load efficiency during operation at low cooling-water temperature compared to the conventional model*2.

*1 Maximum partial load COP of the SG series is 24.5 and the GX is 20.5.
*2 Comparison with HC-It-F-GX (2010).

Compact Size

The use of a newly developed economizer and various other improvements have realized significant reduction*3 in size and weight. The result is substantially lower operating mass and a smaller footprint than the conventional model*2.

*3 The installation area of the GX series is 14.3m² and for the SG is 12.2m². The operating mass of the GX is 20.9 tons and for the SG is 17.3 tons.

Support for Power Saving and Energy Conserving Operation

The chiller supports customers' power saving and energy conservation needs with Power Saving Mode operation (control to ensure power consumption within a preset value and high-efficiency operation) and Eco Mode operation (shift to control of chilled water outlet temperature during low-load operation).

Environmental Performance

Energy Conservation

Reduction of approximately 9%*5 in annual power consumption*4 compared to conventional models*2.

*4 Estimation of 7,200 hours of annual operation, 3,516kW average load ratio of 60%.
*5 Annual power consumption of the GX series is 1,741,257kWh and 1,577,774kWh for the SG.

Resource Conservation

Reduction in product weight due to the newly development economizer and other improvements.

Environment Friendly

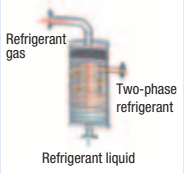
- Use of the refrigerant HFC-134a, which does not damage the ozone layer.
- Reduced refrigerant use*6.

*6 At 500RT, charged quantity of refrigerant of the conventional GX series is 1,000kg, and for the new SG is 540kg.

Distinctive Hitachi Technologies

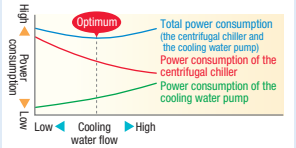
1 Newly Developed Economizer

Use of the cyclone method has resulted in improved gas-liquid separation performance and size reduction.



2 Cooling Water Variable Flow Eco Operation (Option)

Calculating the cooling water pump power consumption decrement due to the cooling water variable flow control and of the accompanying chiller power increment and outputting a flow rate signal to the cooling water pump to minimize total power consumption (by the centrifugal chiller and the cooling water pump) makes it possible to conserve energy.



Multi-ring Configuration Realizes a
High Energy Conservation Performance

Fluorescent Ceiling Light

MRC-AS4800

Key Features

- **Eye-pleasing Light**
  A combination of a fluorescent tube with a wide area of illumination and an ingenious cover design delivers uniform, eye-pleasing light.
- **Eco Korekkiri Button*1**
  The Eco Korekkiri Button activates a brightness sensor that detects the impact of outside light sources on room brightness and maintains illumination at a comfortable preset level.

*1 MRC-AS and MRC-AH series.

Environmental Performance

Energy Conservation

The newly developed multi-ring configuration realizes an Energy Saving Standard Achievement Rate of 139% (fiscal 2012 standard).*2

*2 MRC-AS4800, MRC-AH4800, MRC-AA4800.

Resource Conservation

The lamp has a long rated life of 21,000 hours*3. The long service life of approximately ten years*4 reduces the bother of lamp replacement.

*3 Rated life is the average life calculated based on experimental data in accordance with the JIS standard. Service life varies according to the use environment and method of use.

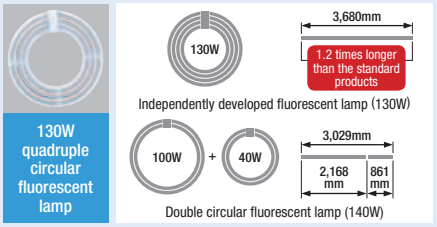
*4 In the case of home use of 2,000 hours per year. (Japan Luminaires Association Technical Data 114-1996).

Distinctive Hitachi Technologies

1 Multi-ring Structure with a Longer Fluorescent Tube

A fluorescent tube 20% longer than the tubes in a standard Double circular fluorescent lamp increases luminous efficiency. Power consumption is reduced by approximately 17%.*2

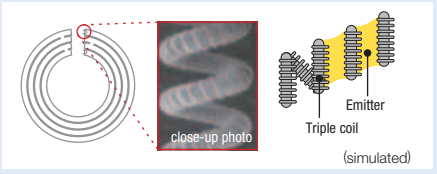
Energy Saving Standard Achievement Rate by 139%*2



2 Long Lamp Life

A triple-coil filament increases emitter (the substance that emits electrons) holding capacity.

Lifetime of approx. 10 years*4, for resource conservation



Direct Illumination Method for
Comfortable High-Intensity Light

LED Ceiling Light

LEC-BH810

Key Features

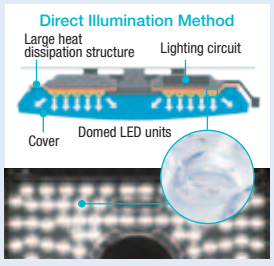
- **Maximum Brightness**
  The direct illumination method realizes the maximum brightness within the brightness standard.*1 For instance, the LEC-BH810 delivers high-intensity light with rated luminous flux of 6,090 lm, the maximum brightness within the standard for a 14 tatami mat Japanese room.

*1 Housing Catalog Applicable Tatami Units Labeling Standards (Guide 121: 2011) established by the Japan Luminaires Association.

Distinctive Hitachi Technologies

Direct Illumination Method

Domed LED units consisting of two LED chips are arranged in a rectangular shape. With Hitachi's original direct illumination method, there is no obstruction between the LED units and the cover, which means that the light emitted from the LED units directly illuminates the cover. The direct illumination method realizes high-intensity (rated luminous flux of 6,090 lm), bright light with little loss.



* The illustration shows the light with the cover removed for explanatory purposes. The cover is attached in actual use.

Environmental Performance

Energy Conservation

- The Eco Korekkiri Button activates a brightness sensor that detects the impact of outside light sources on room brightness and maintains illumination at a comfortable preset level.
- When outside light is sufficient, the light automatically dims and power consumption is curbed. When the room becomes brighter than the preset brightness level, the light automatically switches off.

The brightness sensor maintains illumination at a comfortable preset level.

Brightness from outdoor light and other sources	Nighttime and other times of no outdoor light	Cloudy or rainy days	Times of sufficient outdoor light	Automatic switch-off when ambient light is sufficient
Illustrations of automatic dimming, switching on, and switching off				Maintain illumination at a comfortable preset level
Lighting brightness (index)	100%*2	50%	15%	0%
Power consumption (index)	100%	60%	25%	0%*3

*2 When there is no external light, energy conservation may not be possible.
*3 Power is used to operate the brightness sensor.

Heat Pump Water Heater

Key Features

- **Instantaneous Water Heating**

  This heat pump water heater employs the tankless instantaneous heating method to instantaneously heat water. Rust-and-grime resistant stainless steel is used for the direct pressure boiler pipes inside the hot water storage unit that supplies hot water to the shower and taps (combination taps).

Distinctive Hitachi Technologies

Hitachi's Original Tap Water Direct Pressure Method

The heater instantaneously boils water from a tankless tap-water source, using a high-speed heating method (tap-water direct-pressure method). Even when hot water is simultaneously used in two locations, when water supply pressure is 500 kPa, the amount hot water is approximately 160%*1 higher and hot water pressure is 290%*2 higher in comparison with Hitachi Appliance's pressure reduction valve method.

*1 Comparison of shower flow rate during simultaneous use of hot water in two locations, a shower (bathroom) and tap (kitchen), for the tap water direct pressure method and Hitachi Appliance's pressure reduction valve method.
Tap water direct-pressure method: Approx. 12 to 16 liters/min.
Hitachi Appliance's pressure reduction valve method: Approx. 7 to 10 liters/min.
Tap (kitchen): Approx. 5 liters/minute. First-floor use. Water supply pressure of 500 kPa. Pipe diameter of 20A. 5 meter straight pipe. Hitachi Appliance data.

*2 Comparison of tap water direct pressure method with water supply pressure of 500 kPa and Hitachi Appliance's pressure reduction valve method with tank pressure of 170 kPa.

Environmental Performance

Energy Conservation

- Use of a high-efficiency scroll compressor, a review of the air blower system and use of a flexible vacuum insulation panel with high insulation efficiency have improved energy conservation performance and realized an Annual Performance Factor (JIS)*3 of 3.3 for BHP-FV37JD 370 litters tank capacity.
- The heater uses intelligent control that ensures efficient operation with features including sensor detection and learning function. Eco Energy Conservation Insulation provides maximum energy savings of approximately 35%*4 when keeping a bath warm.

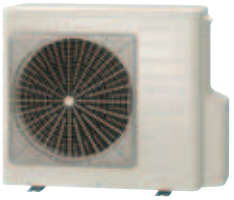
*3 The Annual Performance Factor (JIS) indicates the hot water supply heat quantity and bath warming heat quantity per unit of power consumption at the time of operation of the heat pump water heater in accordance with JIS C 9220:2011.

*4 Outside temperature: 7℃. Tank hot water temperature: 75℃. Bath tub capacity: 180 liters. Temperature setting: 42℃. Bath pipe nominal diameter: 13A. Cross-linked polyethylene pipe: 10 meter. Insulating material: 10 mm. Use of a high-insulation bath tub (insulation performance: temperature decrease of approx. 1℃ per two hours). Comparison when bath water is kept warm for 120 minutes after preparation. After learning of bath heat-retention performance. During energy conserving warming: 1,600 kJ. During automatic warming: 2,460 kJ.

Environment Friendly

- The use of a natural refrigerant (CO_2) eliminates concern about damage to the ozone layer.

Heat pump unit



Hot water storage unit

BHP-FV46JD

* The hot water storage unit in the photo is equipped with leg covers (sold separately).

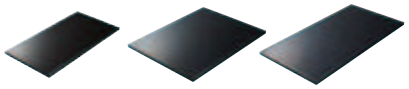
Efficient Power Generation from Sunlight

Home Solar Power Generation System

Power conditioner

HSS-P55A

Solar cell module



SFL95-C　SF155-S　STP195S-24/Adb+

Key Features

- **Efficient Power Generation from Sunlight**
  - Selection of one type of solar cell module from three available types.
  - Hitachi's original HI-MPPT control.
  - Power conditioners make efficient conversion of generated electricity.

Environmental Performance

Top-Class Power Conversion Efficiency of 96%*1

- Hitachi's original inverter technology efficiently converts DC power to AC power.

*1 Among power conditioners of home solar power generation systems in Japan. Launched 20 August, 2012. Rated load efficiency stipulated in JIS C 8961.

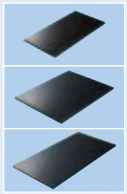
CO_2 Emissions Reduction

- Annual CO_2 emissions reduction of approx. 1,376kg-CO_2.*2

*2 Approximate CO_2 emissions reduction in the case of installation of a 4.0kW system. Annual expected power-generation capacity: approx. 4,122kWh. In the case of 42 SFL95-C solar cell modules. Trial calculation of CO_2 reduction effect of 334.0g-CO_2/kWh for a CIGS/CIS solar cell. Notation standard of the Japan Photovoltaic Energy Association (JPEA).

Distinctive Hitachi Technologies

User-Selectable Solar Cell Modules



Efficient extraction of electricity from the solar cell modules

DC power

Hitachi's Original HI-MPPT Control

The system searches for appropriate timing amid fluctuation in the peak power point due to changes in sunlight when the solar cell modules generate power. The ability to search for the peak power point makes it possible to curb electricity loss and efficiently extract electricity from the solar cell modules even when sunlight changes between clear and cloudy and when the modules are partially shaded.

* The ability depends on installation, seasonal factors and level of sunlight.

Efficient conversion of DC power to AC power for use in the home

AC power

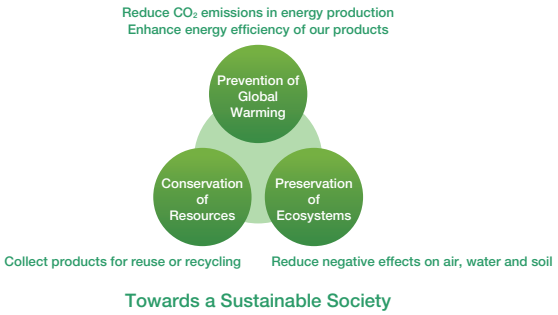
Top-class power conversion efficiency of 96%*1

Hitachi's original inverter technologies, such as transmission loss reduction for the electrical parts and circuit patterns that make up the power conditioner, realize top-class conversion efficiency.

To electric products of home

The Hitachi Group's Environmental Vision

The Hitachi Group has established an environmental vision that focuses primarily on the prevention of global warming, the conservation of resources and the preservation of ecosystems as its basic policy for environmental activities to contribute to the realization of a sustainable society. As a member of the Hitachi Group, Hitachi Appliances engages in environmental conservation activities to realize the environmental vision, including the development of eco-products and environmental impact reduction in production activities.



Action Guidelines for Environmental Conservation

Hitachi Appliances has established groupwide guidelines that set forth actions for environmental conservation in business activities based on the Hitachi Appliances Group Standards of Corporate Conduct.

Purpose

In order to realize an environmentally harmonious and sustainable society through products and services, Hitachi Appliances is committed to meeting its social responsibilities by promoting globally-applicable "MONOZUKURI" (designing, manufacturing or repairing of products), which is aimed at reducing environmental burdens of products throughout their entire life cycles, ensuring global environmental conservation.

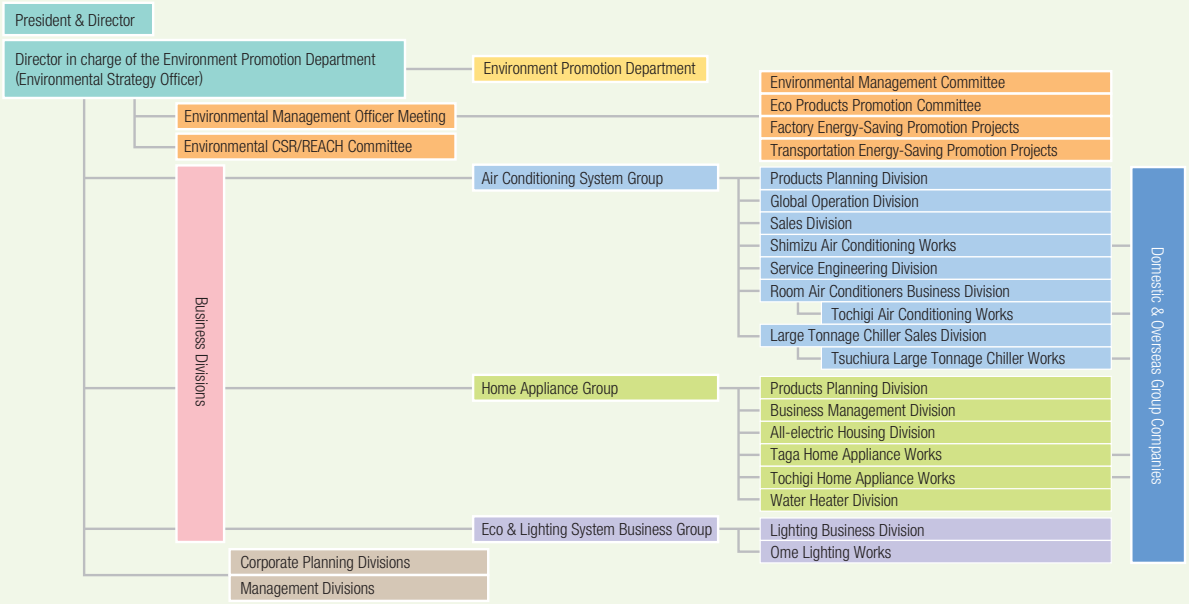
Action Guidelines

1. Global environmental conservation is a critical challenge shared by all humans. Hitachi Appliances is committed, therefore, to fulfilling its responsibilities by assisting in the realization of an environmentally harmonious and sustainable society as one of its management priorities.
2. Hitachi Appliances will make efforts to contribute to society by developing highly reliable technologies and production processes, while identifying needs considering concerns related to the prevention of global warming, conservation of resources, and preservation of ecosystem.
3. Members of the board in charge of environmental conservation are responsible for facilitating appropriate environmental conservation activities. Departments responsible for environmental conservation should endeavor to promote and ensure environmental conservation activities, including improving environment-related rules and regulations and setting goals for environmental burden reduction. These departments should also confirm that their environmental conservation activities are conducted in a proper manner and ensure that these activities are maintained and improved.
4. Hitachi Appliances will promote globally-applicable "MONOZUKURI" with the aim of understanding and reducing environmental burdens at every stage, including product research and development, design, production, distribution, sales, usage, and final disposal.
5. Hitachi Appliances will investigate and review the environmental impact caused in the course of its "MONOZUKURI" processes. Hitachi Appliances will also introduce excellent technologies and materials useful to safeguard the environment, in other words, to reduce environmental burdens through energy and resource saving, recycling, chemical substance management, consideration of ecosystem, and other measures.
6. Hitachi Appliances' environmental conservation efforts are not only to be focused on observing international environmental regulations and those of national and local governments, but also on conserving the environment by implementing voluntary environmental standards when necessary.
7. Regarding globally-applicable "MONOZUKURI" activities, impact on the local environment and community are to be considered. In addition, measures that meet local communities' requests should be implemented.
8. Hitachi Appliances will educate its employees to take action in order to obey environment-related laws, raise their global environmental awareness, and encourage their interest in environmental conservation having wide-view about society activities
9. Hitachi Appliances will evaluate potential environmental problems and prevent them from occurring. In the event that any environmental problem occurs, Hitachi Appliances will take appropriate measures to minimize the environmental burden.
10. Hitachi Appliances will make efforts to disclose information on its environmental conservation activities to its relevant stakeholders. Hitachi Appliances will also actively communicate with these stakeholders so as to strengthen mutual understanding and forge cooperative relationships with them.

(Revised on July 2010)

Environmental Management Structure

Hitachi Appliances has established the Environmental Management Board Meeting as a forum for deliberations and decisions concerning Group-level policies and targets. This committee consists of the Environmental Strategy Officer, who coordinates environmental policy for the entire Group, and environmental officers representing business sites and key domestic subsidiaries. Environmental protection activities are implemented by the Environmental Promotion Department, in cooperation with Business Divisions, Corporate Planning Divisions and Management Divisions, on the basis of decisions made by the Environmental Management Board Meeting.



(as of September 2012)

Internal Environmental Auditing

In the implementation of groupwide environmental conservation activities, Hitachi Appliances conducts internal environmental audits of domestic and overseas business sites and Group companies for the purpose of confirming the status of compliance with environmental laws and of implementation of measures to achieve Group objectives. We seek to raise the level of groupwide environmental activities by means environmental audits conducted by audit teams consisting of environmental personnel from the Environment Promotion Department and business sites other than the audited sites.

Building Environmental Management Systems

One of the ways in which Hitachi Appliances is working to reduce its environmental burden and contribute to environmental conservation is through the building of environmental management systems based on the ISO14001 standard, especially at manufacturing sites with significant environmental loads. These systems are now being certified by third-party organizations.

ISO14001 Certification of Manufacturing Sites

Site	Certification date
Tochigi Works	29 January, 1997
Taga Works	22 July, 1996
Shimizu Works	28 October, 1997
Tsuchiura Works	25 March, 1997
Ome Works	30 September, 1997
Hitachi Taga Technology, Ltd.	22 July, 1996
Hitachi Reftechno, Inc.	29 January, 1997
Hitachi-kucho SE, Ltd.	28 October, 1997
Hitachi Air-conditioning & Refrigerating Products (Guangzhou) Co., Ltd.	28 June, 2004
Hitachi Compressor Products (Guangzhou) Co., Ltd.	30 April, 2006
Qingdao Hisense Hitachi Air-conditioning Systems Co., Ltd.	19 December, 2005
Shanghai Hitachi Household Appliances Co., Ltd.	23 November, 2000
Hitachi Household Appliances (Wuhu) Co., Ltd.	10 October, 2003
Hitachi Home & Life Solutions (India) Ltd.	14 February, 2006
Hitachi Air Conditioning Products (Malaysia) Sdn. Bhd.	22 April, 1997
Taiwan Hitachi Co., Ltd.	28 August, 1997
Hitachi Consumer Products (Thailand), Ltd.	20 December, 1999
Hitachi Compressor (Thailand), Ltd.	4 November, 1999
Hitachi Air Conditioning Products Europe, S.A.	4 May, 1999

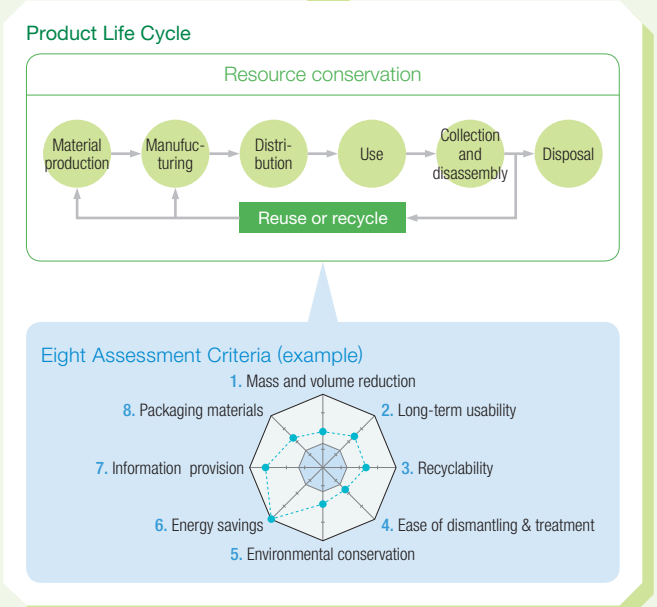
Development of Eco-Products

To reduce as far as possible environmental burden at every stage of the product life cycle from resource extraction to disposal and recycling, Hitachi Appliance conducts assessments at the time of product development and design using Assessment for DfE*, an assessment system that sets forth specific environmental criteria. The system assesses eight criteria, including weight reduction, product longevity, resource recycling and ease of dismantling and disposal using five levels (Levels 1 to 5). Products for which the assessment results of all eight criteria are at least Level 2, equivalent to the model before a major specifications change, and the average score for all eight criteria is Level 3 or higher are designated as Eco-Products.

In addition, Eco-Products that meet standards of an especially high level are designated as “Eco-Products Select.” These products must satisfy one of the following four requirements: 1) having environmental efficiency of 10 times or more compared to equivalent products sold in FY2005, with environmental efficiency indicating reduction in greenhouse gas emissions and resource consumption and improvement in product value; 2) being an industry leader in terms of environmental performance; 3) being award-winning or publicly certified; and 4) achieving CO_2 emissions reduction of 50% or more compared with equivalent products sold in FY2005. In FY2011, fifteen models of refrigerators, washer-dryers, rice cookers and packaged air conditioning systems were designated as Eco-Products Select.

How Assessment for DfE* is Performed

* Design for Environment



Recycling of Home Appliances

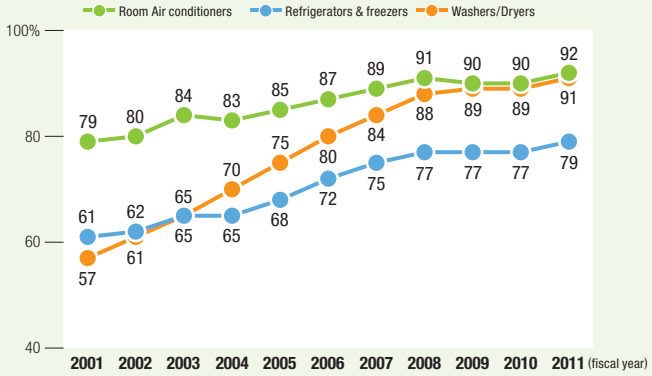
To comply with the Act on the Recycling of Specified Kinds of Home Appliances, which came into effect in 2001, Hitachi Appliances established Kantou Eco Recycle Co., Ltd., a home appliance recycling plant within the Tochigi Works that recycles four specified types of appliances. As a recycling plant integrated with a production works, Hitachi Appliances improves ease of product dismantling and sorting and promotes the use of recycled materials.

In FY2011, a total of approximately 1.35 million units of three types of home appliances (room air conditioners, refrigerator-freezers and washer-dryers) were recycled, and the recycling rate was 86%.

● **FY2011 recycling results for three end-of-life home appliance products**

Item	Room Air conditioners	Refrigerators & freezers	Washers / Dryers
Number of units recycled (thousand units)	250	419	685
Processing weight of recycled units (tons)	10,228	25,531	23,303
Weight of recycled material (tons)	9,439	20,334	21,226
Recycling rate (%)	92	79	91
Legal recycling rate (%)	70	60	65

● **Changes in the recycling rate of three end-of-life home appliances**



Global Warming Prevention

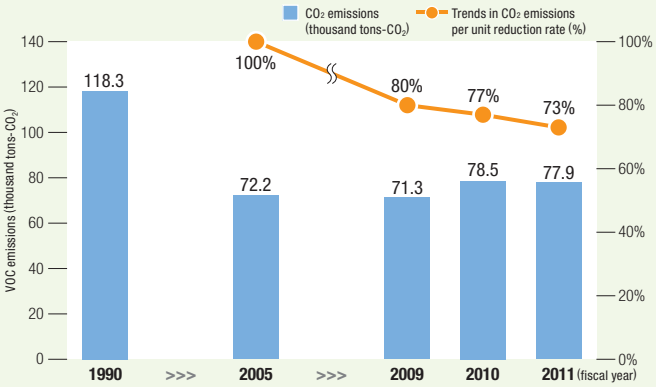
To reduce greenhouse gas emissions and contribute to global warming prevention, Hitachi Appliances has continuously worked to reduce CO_2 emissions from energy use accompanying production activities.

In addition to existing measures to reduce the amount of CO_2 emissions from the FY1990 level, in FY2011 we began activities to reduce CO_2 emissions per unit of production*1 from the FY2005 level by means of continuous investment in energy conservation and efficiency improvement in production processes.

In FY2011, although production volumes rose due to factors including an increase in replacement purchasing of energy-saving products fueled by greater consumer disposition to save energy and reduce electricity consumption, rigorous energy conservation activities including the introduction of a system for visualization of power consumption at business sites resulted in CO_2 emissions of 77,900 tons, roughly flat year on year and down approximately 34% from the FY1990 level. In addition, CO_2 emissions per unit of production improved by approximately 27% from the FY2005 level.

*1 Except for Shimizu Works, which is based on CO_2 emissions per unit of sales.

● **Trends in CO_2 emissions and the rate of reduction in CO_2 emissions per unit in Japan**



Data gathered: Tochigi Works; Taga Works*2; Shimizu Works; Ome Works*2 and Hitachi Reftechno, Inc.

*2 Includes affiliate companies working with the above companies.

The CO_2 emissions coefficient in electricity was calculated using CO_2 emissions intensity, Federation of Electric Power Companies of Japan index for FY1990 and FY2005 and actual emission coefficients for electric power companies as published by the Ministry of the Environment for FY2009 and subsequent years. However, since the actual emission coefficient for electric power companies for FY2011 is unpublished, the FY2010 actual figure was used.

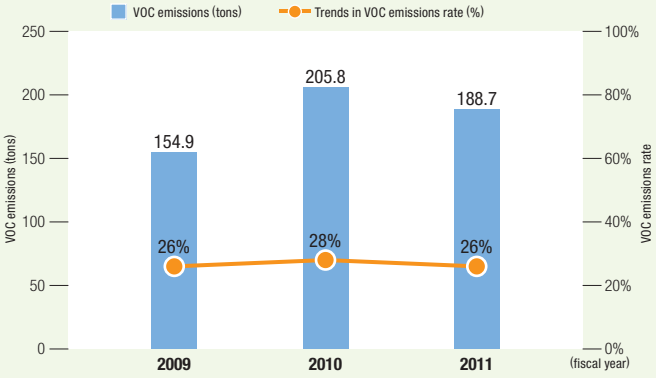
Management of Chemical Substances

Hitachi Appliances is working to reduce emissions from its plants of 41 volatile organic compounds (VOCs)*3 independently determined by the Hitachi Group, including xylene, toluene and methanol, in accordance with the Amended Air Pollution Control Act, which took effect in April 2005.

In FY2011, Hitachi Appliances began an initiative to reduce the VOC emission ratio (VOC emissions / volume of VOCs handled). In FY2011, VOC emissions decreased by approximately 17 tons from FY2010 to approximately 188.7 tons due to factors including the introduction at the Shimizu Works of powder coating, which reduces VOC emissions in the some coating process. The VOC emission ratio decreased by 2 percentage points to 26%.

*3 Volatile organic compounds such as toluen, xylene and ethanol.

● **Trends in VOC emissions and the VOC emission ratio**



Data gathered: Tochigi Works; Taga Works*4; Shimizu Works; Ome Works*4 and Hitachi Reftechno, Inc.

*4 Includes affiliate companies working with the above companies.

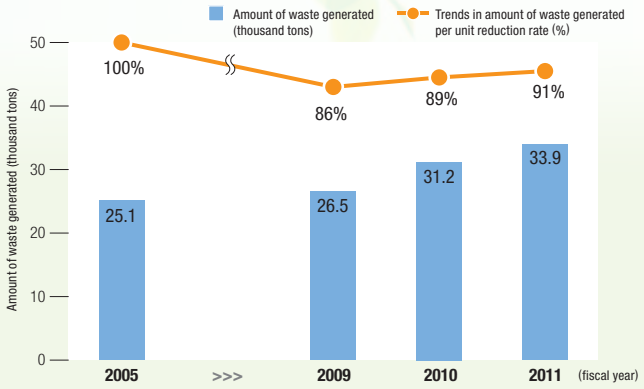
Effective Utilization of Resources

Hitachi Appliances is working to reduce the amount of waste materials and valuable materials (resources with market value) generated in production activities and promote their recycling.

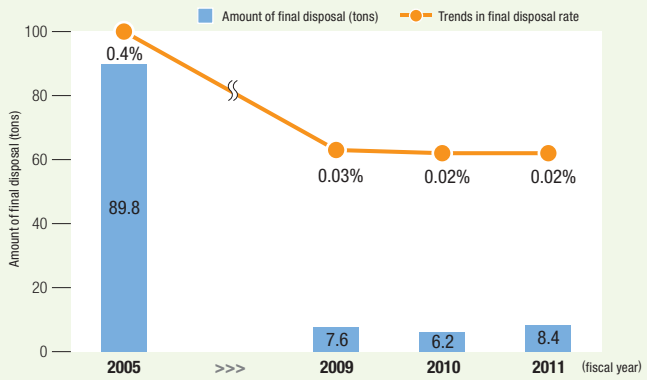
In FY2011, we began activities to reduce the amount of waste generated from the FY2005 level, taking waste generation per unit of production*5 as a performance index. In FY2011, factors including higher production volumes, internalization of parts production and a higher number of parts procured overseas resulted in an increase in the volume of waste generated in FY2011 to approximately 33,900 tons. Although waste generation per unit increased year on year, it decreased 9% from the FY2005 level. At the same time, steady waste separation and recycling efforts resulted in a final disposal rate of 0.02%. Final disposals at the five plants in Japan have been reduced practically to zero, resulting in achievement of zero emission*6.

*5 Except for Shimizu Works, which is based on waste generated per unit of sales.
*6 Zero emission: This approach aims to reduce final disposals at landfills to zero by using waste as raw materials for other industries. The Hitachi definition of this approach states that landfill disposal ratio (landfill disposals/total waste, etc.) in a given year must not exceed 0.5%, and that evaluate for each works.

Trends in waste generated and the rate of reduction in waste generation per unit in Japan



Trends in final disposal and the final disposal rate in Japan



Data gathered: Tochigi Works; Taga Works*7; Shimizu Works; Ome Works*7 and Hitachi Reftechno, Inc.

*7 Includes affiliate companies working with the above companies.

Communication around the World

Taiwan

Taiwan Hitachi Co., Ltd.

Environmental Education for School Children

Taiwan Hitachi Co., Ltd. carried out in Children's Eco Club, an environmental education activity targeting local elementary schools, as one aspect of its environmental communication activities. By conducting tours of plant wastewater treatment facilities and waste sorting and recycling facilities, the company promotes understanding of the importance of waste sorting and recycling and strives to increase environmental awareness among children. This year, the company received a letter of appreciation from the schools for this activity.

Spain

Hitachi Air Conditioning Products Europe, S.A.

Environmental Communication Activities in Spain

Hitachi Air Conditioning Products Europe, S.A. carried out in environmental communication activities together with employees, their families and members of the local community. The company engaged in a variety of activities in FY2011, including tree-planting in the Vacarisses area, the collection of used clothing and PET bottle caps and plant tours for local students. The company plans to continue to engage in environmental communication activities.

● Japan

Hitachi Applices, Inc.

Exhibition at Eco-Products 2011

In December 2011, we exhibited at Eco-Products 2011, Japan's largest environment-related exhibition, held at the Tokyo Big Sight convention center. The Hitachi Group exhibited a wide variety of eco-products under the theme "Towards a sustainable society: Contributing to urban development for the next generation through eco-products." Hitachi Appliances exhibited refrigerators, room air conditioners and LED lighting, drawing large numbers of visitors.

● Brazil

Hitachi Air Conditioning Products Brazil, Ltd.

Exhibition at an Air Conditioning Fair in Brazil

In September 2011, Hitachi Air Conditioning Products Brazil, Ltd. exhibited at International Fair for Refrigeration, Air Conditioning, Ventilation, Heating and Air Treatment (FEBRAVA), held at the Imigrantes Exposition Center in São Paulo. The company exhibited products including home air conditioners and commercial air conditioners that use a new refrigerant under the theme "Contributing to society through environmental and energy conservation measures" and attracted many visitors to its booth.

● India

Hitachi Home & Life Solutions (India) Ltd.

Winning of the National Energy Conservation Award

Hitachi Home & Life Solutions (India) Ltd. (HHLI) won the National Energy Conservation Award 2011. This award, similar to the Grand Prize for Excellence in Energy Efficiency and Conservation in Japan, was instituted in 2002 by India's Bureau of Energy Efficiency as an energy conservation measure. HHLI received the Certificate of Merit in recognition of the high proportion of five-star models (the highest energy conservation label) in its product line.

The awards ceremony was held on 14 December, 2011 in Delhi, with Prime Minister Manmohan Singh in attendance. Hitachi Appliances intends to continue to develop energy-saving products and contribute to finding solutions to environmental problems in India.

Corporate Overview

Company name	Hitachi Appliances, Inc.
Main business	Development, manufacture, and sales of home appliances and comprehensive air conditioning systems
President & Director	Haruki Yamamoto

Capital Stock	20 billion yen (Hitachi, Ltd. 100%)
Date established	1 April, 2006
Number of employees (consolidated)	About 17,700 (as of the end of March, 2012)
Website	http://www.hitachi-ap.com/

Atago Office (Head Office), Takeshiba Office

Atago Office (Head Office)
(Home Appliance Group)
Hitachi Atago Bldg., 15-12, Nishi Shimbashi 2-chome, Minato-ku, Tokyo 105-8410 Japan

Takeshiba Office
(Air Conditioning System Group)
New Pier Takeshiba South Tower, 16-1, Kaigan 1-chome, Minato-ku, Tokyo, Japan

Affiliated Companies in Outside Japan

ASIA

Qingdao Hisense Hitachi Air-conditioning Systems Co., Ltd.
■ Manufacturing & Sales
[Packaged air conditioners]
TEL: +86-532-8087-5901
Hisense Information Industry Park 218. Qianwangang Road, Qingdao Economic Development Zone, 266510, China

Shanghai Hitachi Household Appliances Co., Ltd.
■ Manufacturing & Sales
[Room air conditioners and Washing machines]
TEL: +86-21-5178-2188
29F, Tower B, City Center of Shanghai, No. 100 Zunyi Road, Shanghai 200051, China

Hitachi Air Conditioning Technology (Suzhou) Co., Ltd.
■ Manufacturing & Sales
[Small chillers and others]
TEL: +86-512-6283-3131
14.D.E., Suchun Industrial Square, #428 Xinglong Street Suzhou Industrial Park, Jiangsu, China

Hitachi Air-conditioning & Refrigerating Products (Guangzhou) Co., Ltd.
■ Manufacturing & Sales
[Chillers, Absorption & centrifugal chillers and Packaged air conditioners]
TEL: +86-20-8786-2838
Aotou Town Qigan, Conghua City, Guangzhou 510935, China

Hitachi Air-conditioning Systems (Hong Kong) Co., Ltd.
■ Sales
[Chillers, Packaged air conditioners and others]
TEL: +852-3620-2138
Rm. 702-3, 7/F., Wharf T & T Centre, Harbour City, Canton Road, Tsimshatsui, Kowloon, Hong Kong

Hitachi Air Conditioning Products (Phils), Inc.
■ Manufacturing & Sales
[Packaged air conditioners and Room air conditioners]
TEL: +63-47-252-1533
No.1a, binictican Drive, Subic Bay Industrial Park phase II Subic Bay Freeport Zone, Philippines

Hitachi Compressor (Thailand), Ltd.
■ Manufacturing & Sales
[Compressors]
TEL: +66-35-330819~32
1/65 Moo 5, Rojana Industrial Park, Tambol Kanham Amphur U-Thai, Ayutthaya 13210, Thailand

Hitachi Tochigi Electronics (Thailand) Co., Ltd.
■ Manufacturing & Sales
[Electronic control boards]
TEL: +66-0-3895-4372~5
Eastern Seaboard Industrial Estate, 64/39 Moo 4 T. Pluakdaeng, A. Pluakdaeng, Rayong 21140, Thailand

Hitachi Home & Life Solutions (India) Ltd.
■ Manufacturing & Sales
[Room air conditioners, Packaged air conditioners, Chillers and others]
TEL: +91-2764-277571
Hitachi Complex, Karan Nagar, Kadi, Dist. Mehsana-382727 Gujarat, India

Shanghai Hitachi Electrical Appliances Co., Ltd.
■ Manufacturing & Sales
[Rotary compressors]
TEL: +86-21-5055-4560
1051, Yunqiao Road, Pudong Jinqiao Shanghai, 201206, China

Hitachi Air-conditioning Systems (Shanghai) Co., Ltd.
■ Sales
[Chillers, Absorption & centrifugal chillers and Packaged air conditioners]
TEL: +86-21-5178-2111
29/F, Tower B, City Center of Shanghai, No.100 Zunyi Road, Shanghai 200051, China

Hitachi Household Appliances (Wuhu) Co., Ltd.
■ Manufacturing & Sales
[Room air conditioners]
TEL: +86-553-5846669
No.2 Qiluoshan Road Wuhu City, Anhui Province 241009, China

Hitachi Compressor Products (Guangzhou) Co., Ltd.
■ Manufacturing & Sales
[Scroll compressors]
TEL: +86-20-8786-1360
Aotou Town Qigan, Conghua City, Guangzhou 510935, China

Taiwan Hitachi Co., Ltd.
■ Manufacturing & Sales
[Room air conditioners, Packaged air conditioners, Chillers and others]
TEL: +886-2-2508-3311
63, Nanking East Road, Sec. 3 Taipei, Taiwan

Hitachi Industrial Machinery Philippines Corp.
■ Manufacturing
[Absorption & centrifugal chillers]
TEL: +63-46-402-1112
PEZA Drive, Phase II Special Export Processing Zone First Cavite Industrial Estate Dasmarinas, Cavite, Philippines

Hitachi Consumer Products (Thailand), Ltd.
■ Manufacturing & Sales
[Washing machines, Refrigerators and others]
TEL: +66-3728-4000
610/1 Moo 9 Tambol Nongki Amphur Kabinburi, Prachinburi 25110, Thailand

Hitachi Air Conditioning Products (Malaysia) Sdn. Bhd.
■ Manufacturing & Sales
[Room air conditioners and Rotary compressors]
TEL: +60-3-8925-6611
Lot 10, Jalan Kemajuan, Bangi Industrial Estate, 43650 Bandar Baru Bangi, Selangor Darul Ehsan, Malaysia

Europe

Hitachi Air Conditioning Europe SAS
■ Sales
[Packaged air conditioners, Room air conditioners, Chillers, Hot-water heaters and others]
TEL: +33-1-34-63-05-00
18, Rue Grange Dame Rose 78140 Velizy, France

Hitachi Air Conditioning Products Europe, S.A.
■ Manufacturing
[Packaged air conditioners and Chillers]
TEL: +34-93-828-0808
Ronda Shimizu 1 Poligono Industrial Can Torrella 08233 Vacarisses, Barcelona, Spain

South America

Hitachi Air Conditioning Products Brazil, Ltd.
■ Manufacturing & Sales
[Packaged air conditioners, Room air conditioners, Chillers and others]
TEL: +55-11-3549-2722
Av. Paulista 854-7 Andar, Bela Vista, CEP. 01310-913, São Paulo-S.P., Brazil

Factories in Japan

Tochigi Works	800, Tomita, Ohira-machi, Tochigi City, Tochigi 329-4493 Japan
Shimizu Works	390, Muramatsu, Shimizu-ku, Shizuoka City, Shizuoka 424-0926 Japan
Ome Works	16-2, Shinmachi 6-chome, Ome City, Tokyo 198-8611 Japan
Taga Works	1-1, Higashitaga-cho 1-chome, Hitachi City, Ibaraki 316-8502 Japan
Tsuchiura Works	603, Kandatsu-machi, Tsuchiura City, Ibaraki 300-0013 Japan

Sales Divisions, Branches and Marketing Offices in Japan (Air Conditioning System Group)

Hokkaido Marketing Branch
Fukushima Marketing Branch
Hokuriku Branch Office
Kansai Branch Office
Shikoku Marketing Branch
Kitanihon Branch Office
Kantou Branch Office
Chubu Branch Office
Chushikoku Branch Office
Kyushu Branch Office

Sales Divisions, Branches and Marketing Offices in Japan (Eco & Lighting System Business Group)

East Japan Marketing Branch
Kyushu Marketing Branch
Kansai & Chubu Marketing Branch

Affiliated Companies in Japan

Hitachi Taga Technology, Ltd.
Hitachi-Kucho SE, Ltd.
Niigata Hitachi Co., Ltd.
Kyushu Hitachi Air Conditioning Co., Ltd.
Shizuoka Hitachi Air Conditioning and Refrigeration Co., Ltd.
Kantou Eco Recycle Co., Ltd.
Hitachi Reftechno, Inc.
Hitachi Air Conditioning Kanto Co., Ltd.
Hitachi Air Conditioning Kansai Co., Ltd.
Kanagawa Hitachi Air Conditioning Co., Ltd.
Hitachi Air Conditioning Techno Service Co., Ltd.
Hitachi Softec Co., Ltd.

Scope of Report

●Reporting Period:	FY2011 (1 April, 2011 to 31 March, 2012)
●Scope of Reporting:	Hitachi Appliances Group consolidated companies Where the scope is different from the above, describe it is so indicated.
●Referenced Guidelines:	"Environmental Reporting Guidelines (FY2012 Version)" (Ministry of the Environment, Japan), "Environmental Performance Indicators Guideline for Organizations (FY2002 Version)" (Ministry of the Environment, Japan), "Environmental Reporting Guidelines 2001—With Focus on Stakeholders" (Ministry of Economy, Trade and Industry, Japan)
●Next Issue:	Around August 2013
●Website:(Only in Japanese)	http://www.hitachi-ap.co.jp/company/environment/kankyo/

Contact Address

Hitachi Appliances, Inc., Environment Promotion Department,

Hitachi Atago Bldg., 15-12 Nishi Shimbashi 2-chome, Minato-ku, Tokyo 105-8410 Japan,
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