

For the Environment

DAISHINKU Group Environmental Policy -Environment Philosophy-

● Social Responsibility

The DAISHINKU Group contributes to creating a progressively developing society through environmental conservation activities which are harmonious with the environment.

● Compliance to Legal and Regulatory Requirements

The DAISHINKU Group observes statutes and regulatory requirements and is engaged in the development of environmentally friendly products.

-Policy-

Throughout all areas of its' business activities, from the development, production and sales of its crystal applied products, the DAISHINKU Group business policy promotes universally trusted environmental management activities.

- 1 Take the initiative in energy and resource saving by properly controlling the substances with environmental impact and reducing the use of them.
- 2 Effectively utilize resources and prevent environmental pollution through the reduction and proper disposal of waste, including reuse and recycling.
- 3 Prevent global warming by carrying out energy conservation activities and CO₂ emissions reduction.
- 4 Avoid the sourcing or use of minerals that directly or indirectly finance or benefit armed groups in the Democratic Republic of the Congo or adjoining countries.
- 5 Observe relevant environmental laws, standards, agreements and any other requirements to which the company subscribes.
- 6 Set environmental targets based on this Environmental Policy and whilst promoting these activities also continuously strive to improve the environmental management system to enhance the environmental performance.
- 7 Educate all employees and those who work for our group in our environmental policies and raise their awareness of environmental conservation through the educational and awareness-raising activities.
- 8 Ensure information on our environmental conservation activities is available to the public.

Organizational Structure

An Environmental Management Committee has been established at each of our business bases and regions to promote environmental activities. ISO14001 certification has been acquired for all our operations in Japan, and a Group Environmental Management Committee has been established for control. The Group Environmental Management Committee monitors various changes, and examines and makes decisions on the direction of the Daishinku Group's environmental activities and the results of activities.

● Daishinku Group Environmental Management Committee



Internal Environmental Audit

The Daishinku Group conducts an internal environmental audit periodically to check the status of its management system. The results of the internal environmental audit are reported to the management, to discuss effectiveness and areas for improvement, contributing to the continuous improvement of the Environmental Management System.

For internal environmental audits, we set focus points based on law and regulation changes, issues of interest to our stakeholders and actual situations of our activities to conduct a clear-cut audit.

Based on the issues and situations confirmed through an internal environmental audit, we review the management system itself following such an audit to ensure effectiveness from multifaceted perspectives, tightening certain controls and simplifying others as appropriate.

ISO Certification Status

The Daishinku Group has acquired the ISO14001 international environmental management standard. Our domestic offices and plants acquired integrated certification in 2000, which is implemented and operated as the management system. For overseas bases, certification is acquired by region, while the management system is implemented for the entire Daishinku Group as necessary in cooperation with domestic and overseas operations.

Twenty years have passed since the acquisition of the certification, and after the completion of upgrading to the 2015 revision of ISO14001, we will review the mechanism and implementation so far to ensure that the management system is efficient and simple and continue to maintain ISO certification.

Waste Risk Management

Various waste is generated from business activities of the Daishinku Group. We outsource waste disposal companies to dispose of industrial waste, but we consider that we bear significant responsibility as a waste generator. For our domestic production bases, we have established mechanisms for proper disposal using the Electronic Manifest System as well as by managing relevant disposal service contracts and permits via a database.

We request disposal service contractors to accept on-site confirmation and make a periodic inspection to check whether the industrial waste entrusted is appropriately treated.

Emergency Response Training

Response procedures in case of an accident or disaster are integrated into the "Emergency Response Program," which is set out with emergency response equipment.

These procedures and equipment are checked at the time of regular training and updated as appropriate according to changes at business bases.

We continue to work on accident prevention as well.



Tokushima Production Div.: Training to prevent chemical spills

Environmental Impact

At each stage of product development and design, manufacturing and sales we use resources such as water, energy and raw materials. Environmental impact of our business activities is as shown in the tables. We continue our efforts to understand each situation and reduce its impact.

INPUT

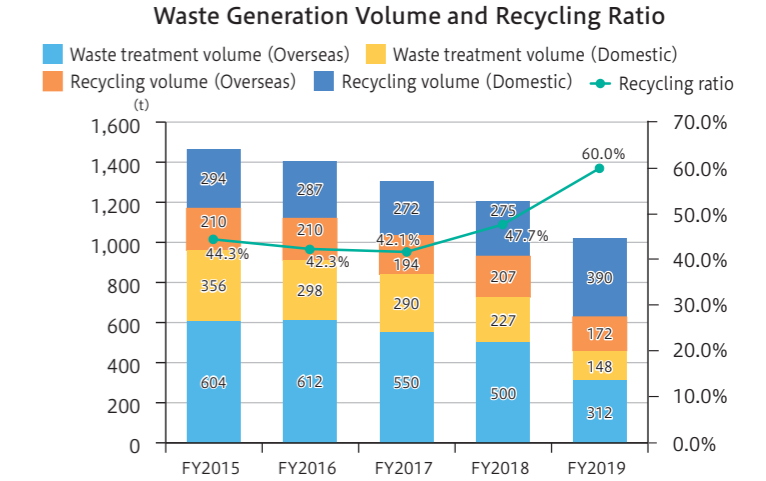
Electric power	('18)	134,523	MWh
	('19)	124,719	MWh
Fuel oil	('18)	884	kL
	('19)	903	kL
City gas	('18)	266	km ³
	('19)	213	km ³
Kerosene	('18)	2	kL
	('19)	2	kL
LPG	('18)	6,898	kg
	('19)	8,016	kg
Water	('18)	876	km ³
	('19)	862	km ³

OUTPUT

CO ₂	('18)	77,034	t-CO ₂
	('19)	72,690	t-CO ₂
Wastewater	('18)	741	km ³
	('19)	712	km ³
Waste generation volume	('18)	1,208	t
	('19)	1,022	t
Waste treatment volume	('18)	727	t
	('19)	460	t
Recycling volume	('18)	482	t
	('19)	562	t
Products	Next-generation crystal devices "Arkh series"		
	Crystal Resonators		
	Tuning Fork Crystal Resonators		
	Crystal Oscillators		
	Monolithic Crystal Filters		
	Optical Products		
	MEMS Oscillators		

Waste Reduction, Resources Recycling

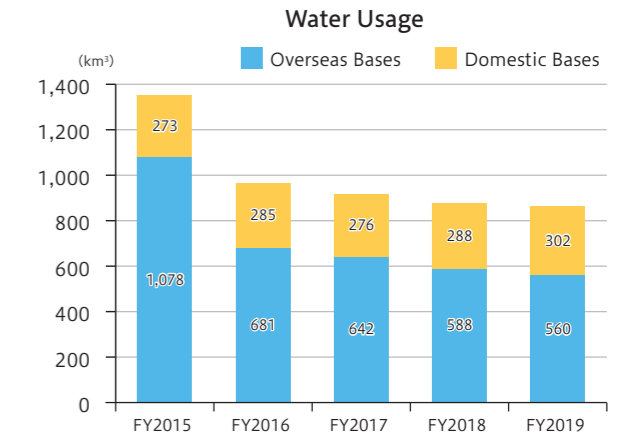
The Daishinku Group is working on proper treatment as well as waste reduction. We adopt two different approaches: reducing the amount of waste for landfill and incineration, and reducing the volume of waste generation itself. Starting two years ago, we have continued our efforts to reduce sludge generation, which accounts for a large part of our waste. We have reduced the amount of sludge generated by making improvements to our manufacturing processes and reducing chemical usage as well as by modifying wastewater treatment facilities and improving treatment flows. As a result of such continuous efforts, the amount of waste has been decreasing.



Effective Use of Water Resources

Water resources are essential for the Daishinku Group's production activities. In FY2016, we conducted a review of production items, which resulted in reduction of water usage by 30% compared to FY2015. Since then, usage has been gradually decreasing as a result of our continuous efforts, and we succeeded in reducing water usage by 40% in FY2019 compared to FY2015.

Climate change due to global warming is affecting the amount of water available. Along with our efforts to prevent global warming, we will work on effective use of water resources.

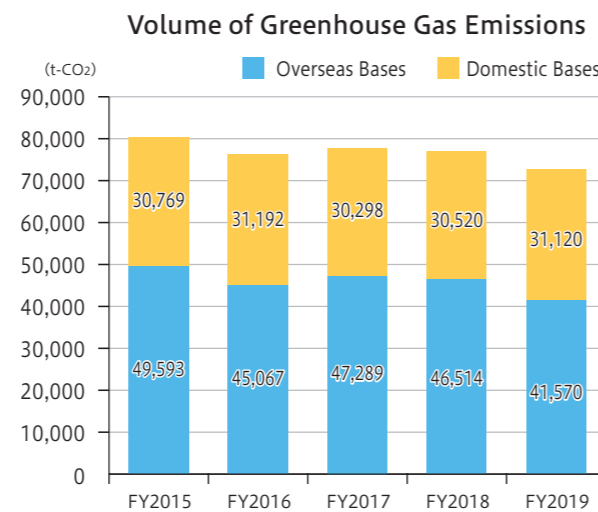


Improvement of Environmental Performance

Throughout the whole process of product design, manufacturing and sales we work towards the prevention of global warming through the promotion of energy conservation and waste reduction.

Prevention of Global Warming

The Daishinku Group uses electricity and fossil fuels for its business activities. We are engaged in CO₂ emissions through their use, and promote activities to reduce greenhouse gas emissions. Since the main cause of CO₂ emissions is the use of electricity, we improved the operation of equipment using electricity at our production bases, in combination with efforts at energy savings. We use energy efficiently to reduce greenhouse gas emissions by reviewing settings so as to achieve optimal operating conditions not for single units of equipment but for the entire system. Further, we make every effort to raise energy conservation awareness of employees through regular training and education.



Topics

Growing Synthetic Crystals with Energy Saving

When growing synthetic crystals, electricity accounts for more than half of the cost of synthetic crystals, and accordingly, reducing electricity usage will lead to energy savings.

Reducing the number of days of growth would lead directly to energy savings, but will also result in reduced quality. Therefore, it is important to achieve reductions in the number of days of growth while preventing a deterioration in quality, and the growth conditions to enable this are being established. Once such growth conditions are established, electricity usage per growth process will be reduced by 14%. We will continue our efforts toward improvement to further reduce the number of days of growth without a sense of complacency as regards the current situation. In addition to the efforts to reduce the number of days of growth, we are also promoting energy savings for the growth furnaces themselves. In particular, for furnaces using a heater which is high in electricity consumption, we have achieved a reduction of electricity usage per day by 20% by reinforcing and repairing the insulating materials.



Environmental Considerations Relating to Product

Our products are used in everyday electronic devices such as smart phones and tablet PCs, audio visual equipment and car electronics. At the stage of product development and design, we are committed to providing environmentally friendly products under the three keywords, "power saving", "miniaturization", and "proper management of chemical substances."

Environment-friendly Product Design

Power consumption reduction

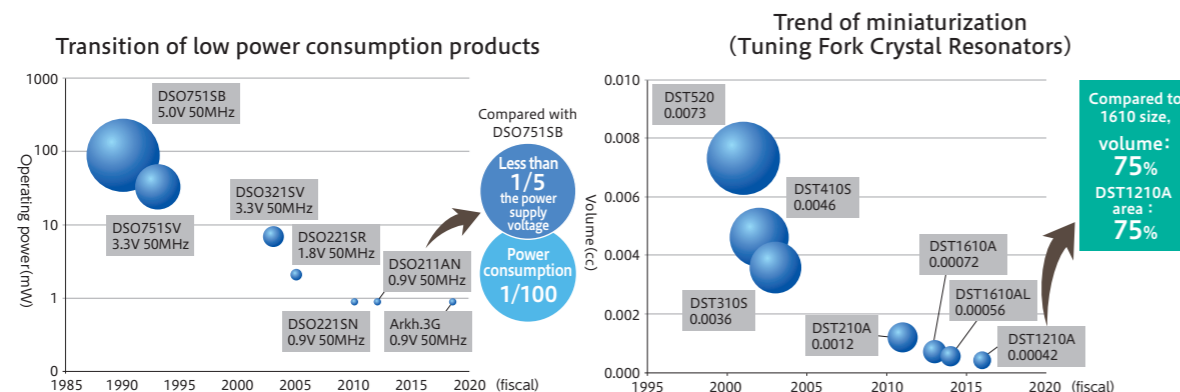
Reducing the power consumption of our crystal products has lowered power consumption by PCs, smartphones and other electronic devices. This in turn contributes to reducing CO₂ emissions.

Downsizing

By reducing the usage amounts of resources achieved through downsizing of products, this will contribute to space savings for substrates on which our products are embedded. Moreover, this also contributes to a reduction in CO₂ emissions during transportation and contributes to a reduction in resources to be consumed throughout the supply chain.

Strict management of chemicals

During examination in the phases of design and development of products, we confirm that no environmentally hazardous substances are used in components. Furthermore, also in mass production, we periodically check for existence of any environmentally hazardous substances by XRF analysis.



Energy Saving Performance of Arkh.5G (OCXO)

Crystal devices have temperature characteristics where the frequency fluctuates according to the external temperature. To correct such temperature characteristics, crystal oscillators called TCXO equipped with a function to correct frequency are generally used for GPS/GNSS and other purposes, but even a higher frequency stability is required for application at base stations, etc., and therefore, crystal devices called OCXO are used for such purposes.

OCXO is a device to reduce the influence of external temperature changes by continuously heating the crystal oscillator using a heater, but power consumption was very high for an electronic component. However, it is very important to improve this because as the 5G network expands in the future, the number of base stations will overwhelmingly increase compared to the 4G LTE era due to the frequency band used. Accordingly, we have developed the new OCXO Arkh.5G Series that can reduce power consumption to 1/4 or less of our conventional products. With this Series, we have minimized the heat capacity of the crystal by using in it our unique ultra-small crystal device, Arkh.3G oscillator, as well as achieved a drastic reduction in power consumption by adopting a heat insulation structure taking advantage of its small size.

We estimate that 50 million units of OCXOs for 5G base stations will be newly applied in the coming five years. If these are calculated based on the power consumption of Arkh.5G products, the volume of CO₂ reduced compared to our conventional products will be equivalent to that absorbed by 18,000ha of forest per year. Thus, we will promote market penetration of Arkh.5G products also from an environmental perspective and contribute to a reduction in environmental impact.



With Our Customers

Putting into practice the principle of "Customer First," the Daishinku Group endeavors to offer products that are trusted by our customers and the market. With our Quality Management System in place, we constantly strive to improve the quality of our products. We sincerely respond to feedback obtained through dialogues with our customers to maximize customer satisfaction.

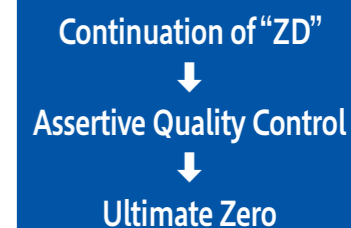
Our Approach to CSR from the Viewpoint of Quality



Executive Officer and General Manager
Quality Assurance Div.

Toshiya Matsumoto

Under the corporate quality policy, the Daishinku Group strives to provide reliable products to the market and engages in quality improvement activities by implementing the principle of "Customer First," complying with laws and regulations and customer requirements, and establishing the concept of quality values. Further, upholding the "Realization of Ultimate Zero" policy of the Quality Assurance Div., we aim to be a company not just by supplying products but also by providing products that our customers admire and find truly irreplaceable. By establishing a quality management system that can meet our customers' expectations, we will continue to make efforts to provide all our stakeholders with security and safety.



- Reliance and Security -

"Towards Ultimate Zero from External/Internal Perspectives"

Quality Philosophy

• Thorough customers-first attitude

Slogans Better Product, Better Price,
Better Delivery, Better Safety

• Compliance to legal and regulatory requirements

• Establishment of the Concept of Quality Values

Quality Policy

- 1) Establishing a management system towards "Ultimate Zero";
- 2) Disseminating the "concept" horizontally in a repeated manner to move toward the phase of prevention;
- 3) Executing reliable evaluation of contradictions with "change" as a starting point;
- 4) Standardizing good practices by making "comparisons" between production bases;
- 5) Enhancing analytical abilities to propose the next move.

Quality in Three Aspects



Quality in Systematization

Continued quality improvement activities under the Quality Management System, in conformity with the global quality standards ISO9001 and IATF 16949.

Quality in Technology

Quality improvement activities focusing on stable production satisfying the conditions for product conformance based on reliability evaluations and preventive measures by means of combining design management technology obtained from past experience with new elements.

Quality in People

People as the true foundation of manufacturing, and human resource development with an emphasis on the cultivation of an acute sense of quality through QMS activities.

Quality Management System

The Quality Management System (QMS) is the international standard necessary for quality assurance and enhancement of customer satisfaction relating to product quality. The Daishinku Group has acquired ISO9001 certification at production bases in Japan and overseas (except for Kanzaki plant).

The production bases that manufacture products for the automobile industry have acquired IATF16949 certification, which is specific to this industrial sector. We actively pursue continued product quality improvement with QMS.

Our ISO certification status is viewable on our official website.

(<https://www.kds.info/product-support/iso-certificate/>)