



shaping your dreams

Environmental Report

2016



OSG Corporation

OSG is striving to reduce the environmental impact of its business activities by creating a corporate culture in which all employees actively address environmental issues. Our goal is to contribute to the sustainable growth of society by developing communication and mutual understanding with our stakeholders.



OSG Corporation
President and Coo

A handwritten signature in black ink, appearing to read 'R. Ohikawa'.

OSG has introduced its new brand statement and tagline “shaping your dreams” as we approach our 100th anniversary. To make the next leap forward, we will continue to provide the best tools and machining solutions to our customers utilizing our global network spanning 29 countries.

Through manufacturing and human resource development, we are continuing to enhance our “Global Presence”, increase our “Health Consciousness”, and promote our “Environmental Friendliness”. As part of our efforts to prevent global warming and create a low-carbon society, we are promoting the energy-saving activities by improving production efficiency.

To help our customers to reduce their environmental impact, we are striving to develop environment friendly and highly productive products with higher quality, higher performance, and longer tool life.

Since its foundation in 1938, OSG has grown providing a wide range of products that include taps, end-mills, drills, rolling dies, and gauges. In our manufacturing, we are keeping the recycling rate over 99% by actively promoting the recycling of waste from our business activities as well as the conservation of energy and resources.

Now, the waste problem has grown important not only on the global scale but also on the cosmic scale. OSG will contribute to the sustainable use of the space environment by sponsoring the “IDEA OSG 1” project, which aims to develop solutions against space debris.

We are committed to achieve sustainable growth along with society by providing excellent products and services to our customers and aiming to further reduce the environmental impact. We look forward to your continued support.

shaping your dreams

OSG introduced its new brand statement and tagline “shaping your dreams” toward the 100th anniversary.

The power of OSG lies in our assured innovative technological know-how for producing high-quality and high-performance products; our exceptional services to respond to situations diligently; and our out-of-the-box thinking to provide total solutions that anticipate our customers' needs.

As a comprehensive cutting tool provider with operations spanning across the globe, we are committed to contribute to the advancement of the manufacturing industries by shaping our customers' dreams into reality.

<http://www.osg-global.jp/brand/>



shaping your dreams

Fundamental Business Policy

- Always aware that our corporation is an institution that serves society, we provide products that are appreciated by our customers.
- We assign our employees appropriate jobs and strive to improve their daily lives.
- We strive to provide stable dividends to our stockholders.
- We implement sound business practices that earn enhanced social trust and develop the corporation into a worldwide business.

Basic Environmental Ideas

- All will work to maintain the global environment in harmony with OSG's basic business policies.
- OSG publicizes information on its three declarations made in October 1996 (i.e., Global Expansion, Health-consciousness, and Eco-friendliness).
- OSG conducts activities with consideration of the environment while offering products and services that contribute to society.
- Following societal norms, OSG promotes communication with the local community.

Environmental Policy

OSG strives to protect the global environment and act in harmony with nature under OSG's slogans of "an Eco-friendly Company" and "a Culture That Cares for the Environment."

Sixth Mid-Term Plan—Sixth Stage Slogan (From FY2015 through FY2017)

- **To the Next Stage of Energy-Saving Activities**
[Priority] Improvement of Energy Conservation

FY2015 Targets and Results, FY2016 Targets

| Environmental Objectives | | FY2015 Target | FY2015 Result | FY2016 Target |
|--------------------------|---|---|---|---|
| Energy Conservation | Total Energy Use Reduction (Energy sources: Electric power, Fuel oil and LPG) Total use of energy BM: 85,018 GJ/month | 1.0% reduction 850 GJ/month reduction | 1.8% reduction 1,565 GJ/month reduction | 1.0% reduction 850 GJ/month reduction |
| | Basic unit of production BM: 20 GJ/million yen | 1.0% reduction 0.20 GJ/million yen reduction | 8.7% reduction 1.74 GJ/million yen reduction | 1.0% reduction 0.20 GJ/million yen reduction |
| Eco-Products | Eco-Friendly Product Development | 13 cases | 13 cases | 16 cases |
| Eco-Factory | Eco-Friendly Production | 24 cases | 24 cases | 24 cases |



An important task for OSG is to address environmental issues, which will impact future generations. We aim to reduce environmental impacts and build a recycling-oriented society, while making efficient use of resources, promoting eco-friendly production and providing eco-friendly products and services to our customers.



Material Balance

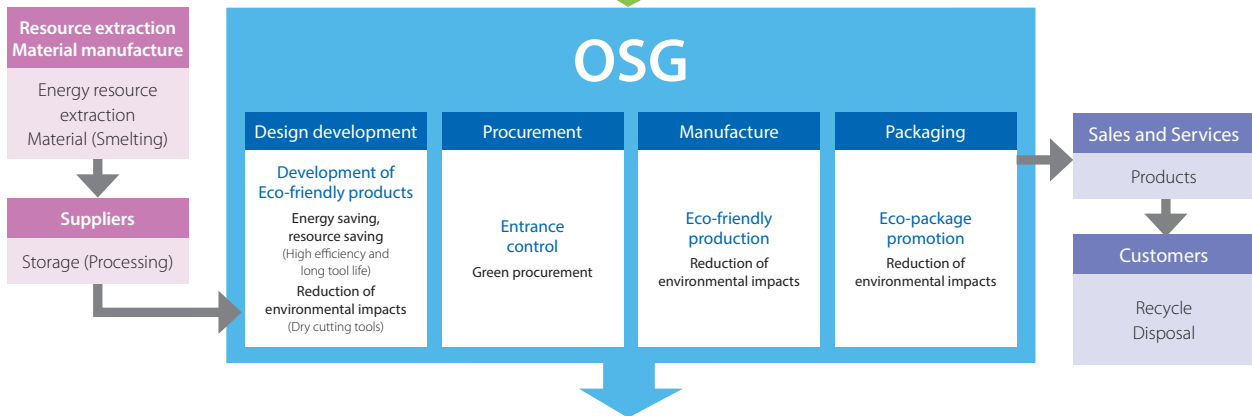
In order to contribute to the realization of a low-carbon society and the creation of a resource recycling society, OSG understands and manages the various environmental impacts of our business activities. We remain committed to initiatives such as reducing energy use and using waste from our manufacturing processes as recycled materials.

INPUT

(Natural resources, Energy)

| Energy | |
|-----------------------------|------------------------|
| Purchased electric power | 85,000,000 kWh |
| Crude oil power generation | 867 kl |
| Air conditioning | 800 kl |
| Gas (LPG) | 427 tons |
| Water supply | 131,112 m ³ |
| Water for industrial use | 15,558 m ³ |
| Well water | 5,144 m ³ |
| Paper: Copy paper (A4 size) | 3,540,000 sheets |

| Resources | |
|--------------------------------------|---------------|
| Raw Materials (Metal) | 1,841 tons |
| Oils (Cutting fluid, Grinding fluid) | 461 kl |
| Others | Sub-materials |



OUTPUT

(Waste materials,
Emissions to water and
atmosphere)

| Manufactured Products | |
|-----------------------|--------------------|
| Production | 53,129 million yen |
| Packaging supplies | 183 million yen |

| Subjected Material of PRTR | |
|----------------------------|-----------|
| Chromium (metal content) | 88.6 tons |
| Cobalt (metal content) | 53.9 tons |
| Manganese (metal content) | 6.2 tons |
| Molybdenum (metal content) | 62.9 tons |
| Vanadium (metal content) | 29.7 tons |

| Water Emissions | |
|---|------------------------|
| Drainage water | 151,814 m ³ |
| * Most drainage water is domestic drainage water. | |
| * We have balanced our water use so that the amount of drainage water equals our water usage. 50-60% of actual drainage water is estimated to be from the use of water-soluble coolants and the evaporation from air conditioning, etc. | |

| Atmospheric Emissions | |
|---------------------------|-----------------------------|
| CO ₂ emissions | |
| Production | 48,036 tons-CO ₂ |
| Transportation | 679 tons-CO ₂ |

| Emissions Waste Material | |
|--------------------------|-------------------|
| Amount for re-use | 1,045.5 tons |
| Recycled amount | 960.0 tons |
| Reclaimed amount | 2.5 tons |
| Total output | 2,008 tons |



Promotion of Resources Recycling

OSG has promoted zero emission activities to reduce waste. We developed a system to recycle reusable and recyclable resources, and established a structure to ensure the proper disposal of waste from our operations. Therefore, our recycling rate has been over 99% since 2005.



Waste Recycling

| | |
|---|---------------------|
| Metal scrap | 800.9 tons |
| Cardboard boxes (sold for re-use) | 63.1 tons |
| Waste oil (sold for re-use, recycled) | 379.4 tons |
| Oil sludge (sold for re-use, recycled) | 105.3 tons |
| Diatomaceous soil (sold for re-use, recycled) | 454.2 tons |
| Waste solvents (recycled) | 0.0 tons |
| Waste grinding wheels (recycled) | 41.6 tons |
| Waste plastic (recycled) | 46.3 tons |
| Wood chips (recycled) | 69.5 tons |
| Others (recycled) | 45.0 tons |
| Total | 2,005.4 tons |



Reductions in Environmental Impacts

OSG has strived to reduce energy consumption, CO₂ emissions and waste output. Focusing on efficient energy use and switching to energy-saving equipment, we have worked to promote continuous improvement in environmental impact throughout the entire company.

■ Reductions in Energy Use

In FY2015, OSG reduced the operation of heavy fuel oil power generators. We also continuously encouraged the switch to LED lighting across the entire company. As a result, with inclusion of the introduction of energy-saving equipment such as invertors, our energy consumption per unit of production was a decrease by 9.3% from FY2014.

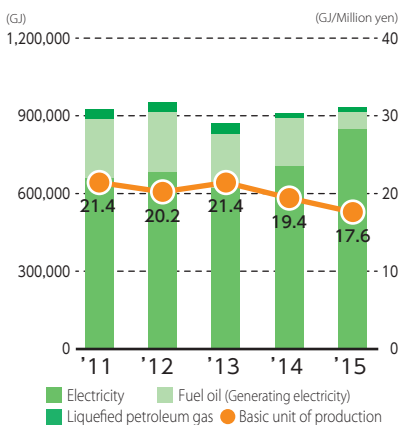
■ Reductions in CO₂ Emissions

OSG's CO₂ emissions per unit of production decreased 14% compared with FY2014. This is because the rate of production increased 13% and the CO₂ emissions fell 2%. The reduction in the consumption of heavy fuel oil for private power generators and the effect of the energy-saving equipment contributed to the reduction of CO₂ emissions.

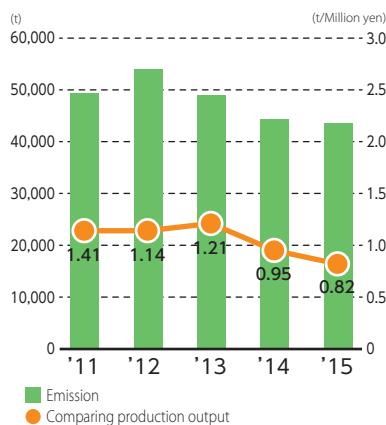
■ Rate of Valuable Resources recovered Waste

OSG continued to promote the recycling of industrial waste. Our waste emissions increased 11% with the increase of 13% in the rate of production, however, as a result of selling diatomaceous soil in our waste as a valuable resource, using our new method, the ratio of valuable resources recovered from industrial waste was 52%, a 2% increase from last fiscal year.

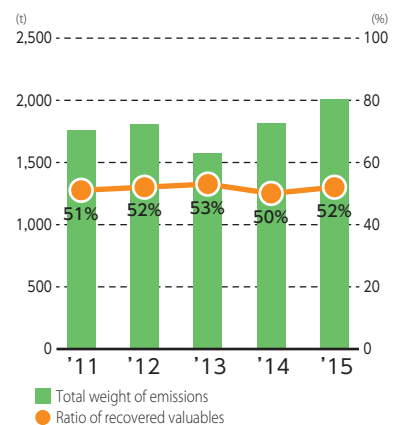
Energy Use



Carbon-Dioxide Emissions



Waste Output and Ratio of Recovered Valuables





Eco-Friendly Products and Services

OSG is striving to produce eco-friendly products and provide them to our customers. We are actively working to reduce environmental impacts by enhancing regrinding services and developing energy-saving products and high-efficiency products that enable high speed and long-life.

■ Carbide Material Recycling

Raw materials of carbide tools include rare metals such as tungsten and cobalt.

OSG group promotes recycling of carbide tools. For customers' CSR activities and zero-emission promotion, we utilize these resources by collecting end-of-life tools from our customers and recycling rare metals.

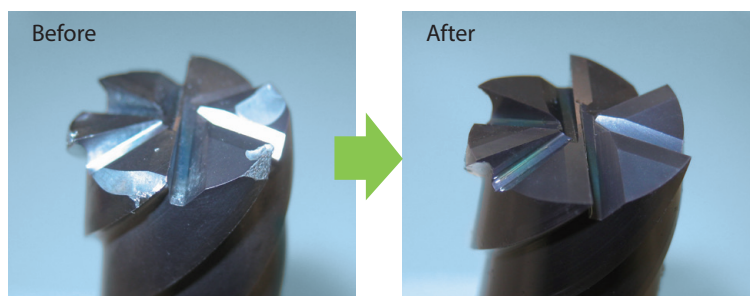
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■ Regrinding Services

Cutting tools such as taps, end mills and drills become worn and dull after repeated use.

These tools can be returned to their original as-new condition by regrinding. OSG group provides regrinding services and meets customer's various needs.





Carbide Flat Drill—ADF Series (ADF-2D/ADFLS-2D)

OSG has developed a new carbide flat drill series – the ADF, designed to excel in a wide variety of drilling applications including inclined and curved surfaces.



Features

- **Wide chip room**

Improved chip evacuation by adopting a wider flute than general-purpose carbide drills

- **Improved cutting edge**

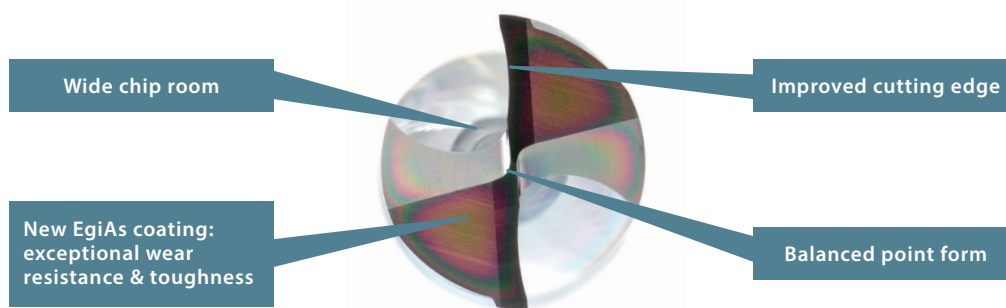
Applicable to a wide variety of applications by improving sharpness in cutting

- **Balanced point form**

Designed with unique thinning shape for wider chip pockets

- **Exceptional wear resistance & toughness: New coating EgiAs**

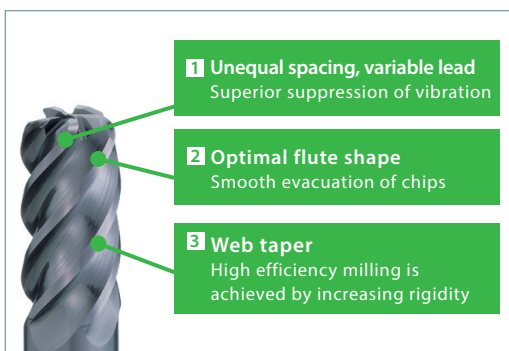
Achieves unparalleled durability with OSG's proprietary coating for high wear resistance and toughness



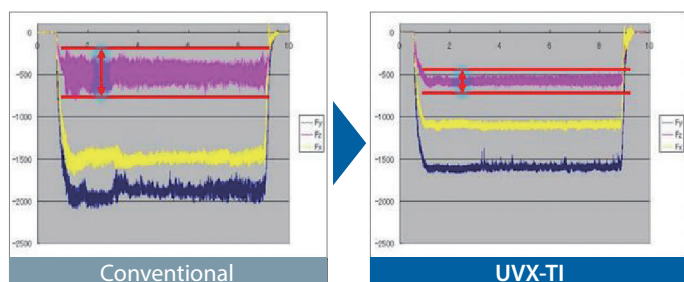
End Mill for Titanium Alloy—UVX-TI Series

The UVX-TI series' unique geometry enables the suppression of chattering to allow stable and highly efficient slotting, side milling and complicated pocket milling in titanium.

Features



Stable and high-feed milling is achieved by suppressing vibration with high rigidity



Conventional

UVX-TI



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