



shaping your dreams

Environmental Report

2020



OSG Corporation



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Main Business

Manufacture and sales of cutting tools, rolling dies, gauges, machine tools, and machine parts; import and sales of tools



Editorial Policy

To provide our stakeholders with detailed environmental information, OSG has published the Environmental Report since FY 2001. In consideration of the environment, we have abolished printing of this report since the 2014 edition and posted it only on our website.

ISO 14001 Certificate

Certified by: Japan Quality Assurance Organization (JQA)
Certificate No.: JQA-EM1088
Registration date: November 10, 2000

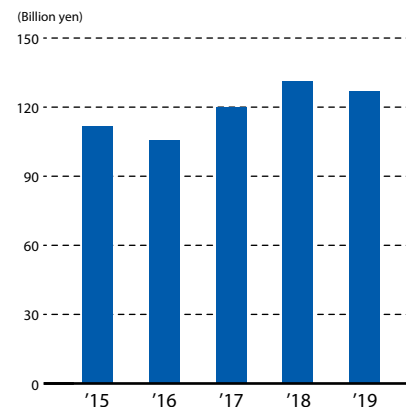
Reporting Period

Fiscal 2019 (from December 1, 2018 to November 30, 2019)

Company Profile (As of November, 2019)

Company Name:	OSG Corporation
Headquarters:	3-22, Honnogahara, Toyokawa-city, Aichi 442-8543, Japan TEL: +81-533-82-1111
Established:	March 26, 1938
Representative:	Norio Ishikawa, President and CEO
Capital:	12,194 million yen
Office:	9 offices
Sales Site:	29 sites
Number of Employees:	7,236 (Consolidated)/ 1,845 (Non-consolidated)
Consolidated Subsidiaries:	16 companies (Domestic)/ 54 companies (Overseas)

Sales Trend (Consolidated)



OSG Corporation is a comprehensive cutting tool manufacturer specialized in the manufacturing and sales of taps, end mills, drills and rolling dies. In our mainstay area of taps and threading tools, we hold the world's largest market share. Since the company's foundation in 1938, we have consistently focused on offering products of high-value-added by combining a proactive response to customer needs with high-grade manufacturing capabilities.

This philosophy is the corporate DNA of OSG, and a key driver of our global business operations and development of world-leading products in the area of cutting tools.

Global Network of OSG Group





Moving toward the realization of a sustainable world

As a comprehensive cutting tool manufacturer that develops business around the world, OSG takes environmental initiatives with its challenging spirit and continues to grow on a global scale. Shaping customers' dreams into reality, we will contribute to the realization of a sustainable world.



OSG Corporation
President and CEO

Fiscal 2020 is the final year of our four-year management plan, "The Next Stage 17".

We need to have a global perspective and respond to the ever-changing business environment such as the uncertain global economic outlook and the economic impact of the coronavirus outbreak.

In 2020, 5G mobile services will start and its technology will drastically drive the fourth industrial revolution in various fields such as robotics, artificial intelligence, nanotechnology, biotechnology, IoT, and fully autonomous vehicles. In an age of information overload, connecting and utilizing information becomes more important for creating new value. For our products, we believe that building comprehensive connections between products and services which can respond to our customers' needs leads to delivering exceptional value to our customers.

The NEO Shinshiro Factory will start operation in May 2020. In addition, we implement the OSG 4.0 Project to promote "smart line" systems at our major factories by introducing the OSG Product Data Management (OPDM) system which centrally controls a wide range of digital information.

The Sustainable Development Goals (SDGs) were adopted by the United Nations General Assembly in 2015 to achieve a sustainable society by 2030. Based on the concept, the OSG Group will strengthen the development and the production of environmentally friendly products with energy saving and high efficiency, and aim to contribute to the sustainable development of society. We ask for your continued support and understanding.

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."

Seventh Mid-Term Environmental Plan (From FY2018 through FY2020)

Slogan: Achieve further environmental improvement as a leading eco company

[We aim to reduce costs by actively promoting eco-factory activities and developing eco-products]

● Priority activities

[Eco-factory]

Reduction in consumption of energy and indirect materials such as cutting oils and grinding wheels

[Eco-product]

Development of cutting tools with long life and that help customers to reduce their environmental impact

[Energy conservation]

Productivity enhancement by reducing setup time and improving cycle time

FY2019 Targets and Results, FY2020 Targets

Environmental Objectives		FY2019		FY2020 Target	
		Target	Result		
1	Energy Conservation	Total Energy Use Reduction (Energy sources: Electric power, Fuel oil and LPG) Total use of energy BM: 96,676 GJ/month	1.0% reduction 957 GJ/month reduction	2.0% reduction 1,911 GJ/month reduction	1.0% reduction 957 GJ/month reduction
		Basic unit of production BM: 20 GJ/million yen	1.0% reduction 0.20 GJ/million yen reduction	9.8% reduction 1.91 GJ/million yen reduction	1.0% reduction 0.20 GJ/million yen reduction
2	Eco-Products	Eco-Friendly Product Development	31 points	27 points	33 points*
3	Eco-Factory	Eco-Friendly Production	34 points	48 points	37 points*

*Improvement of environmental activities Evaluation by scoring (60 points maximum)

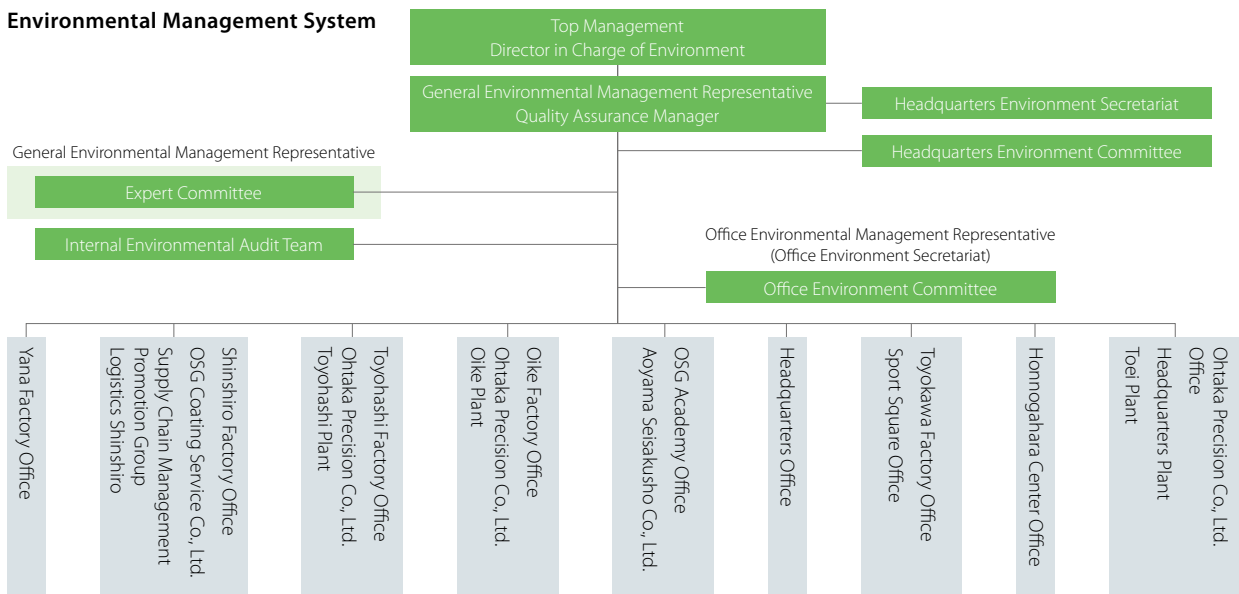


Environmental issues that impact the next generation are an important task for OSG to address. We are actively working on the promotion of efficient use of resources and environment-conscious manufacturing, and the provision of environmentally friendly products and services to our customers, with the aim of reducing environmental impacts and building a recycling-oriented society.

Environmental Management

To proactively tackle environmental issues with the company-wide environmental strategies, OSG has set up the Headquarters Environment Committee. Environmental management activities are primarily conducted by departments close to the workplace with a large environmental impact based on our environmental management system headed by a director in charge of environment as top management and a quality assurance manager as a general environmental management representative.

Environmental Management System



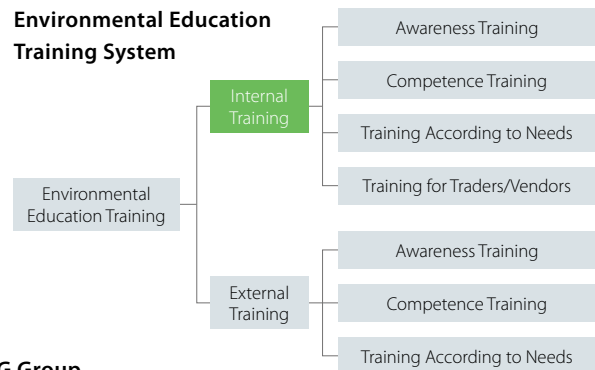
Environmental Education

OSG provides ISO 14001 internal environmental auditor training for newly appointed supervisors to develop skills as a qualified internal auditor for environmental management systems.

We also train persons in charge of environment at each office to raise their knowledge and develop their practical skills through the education of environmental laws and regulations.

In addition to the above, emergency response training is conducted for persons in charge at each office in order to ensure thorough awareness.

Environmental Education Training System



Establishment of Environmental Management System in the OSG Group

Status of Acquisition of ISO 14001 Certification

Nov. 2000	Nine offices of OSG	ISO 14001 Certification Acquisition
Oct. 2004	NODA Precision Inc.	ISO 14001 Certification Acquisition
Dec. 2005	Sanwa Seiki Co., Ltd. Shiga Seisakusho	ISO 14001 Certification Acquisition
Oct. 2007	Nihon Hard Metal Co., Ltd. Kyushu Factory	ISO 14001 Certification Acquisition
Oct. 2007	Aoyama Seisakusho Co., Ltd.	ISO 14001 Certification Acquisition
Oct. 2008	Ohtaka Precision Co., Ltd.	ISO 14001 Certification Acquisition
Oct. 2008	Taiho Sangyo Corporation	ISO 14001 Certification Acquisition
Jun. 2014	Nihon Hard Metal Co., Ltd. Head Office and Factory	ISO 14001 Certification Acquisition

Environmental Accounting

OSG's environmental accounting system is based on the Environmental Accounting Guidelines of the Ministry of the Environment.

Promoting understanding of our efforts to environmental conservation activities through the environmental accounting, we aim to maintain a good relationship with society

Costs and Effects over the past three years

(Thousand yen)

		FY2017	FY2018	FY2019
1	Positive costs	36,448	231,247	223,520
2	Maintenance costs	62,292	64,521	66,326
3	Environmental damage compensation	0	0	0
4	Effects of environmental conservation	13,519	29,965	37,169

Costs and Effects in FY2019

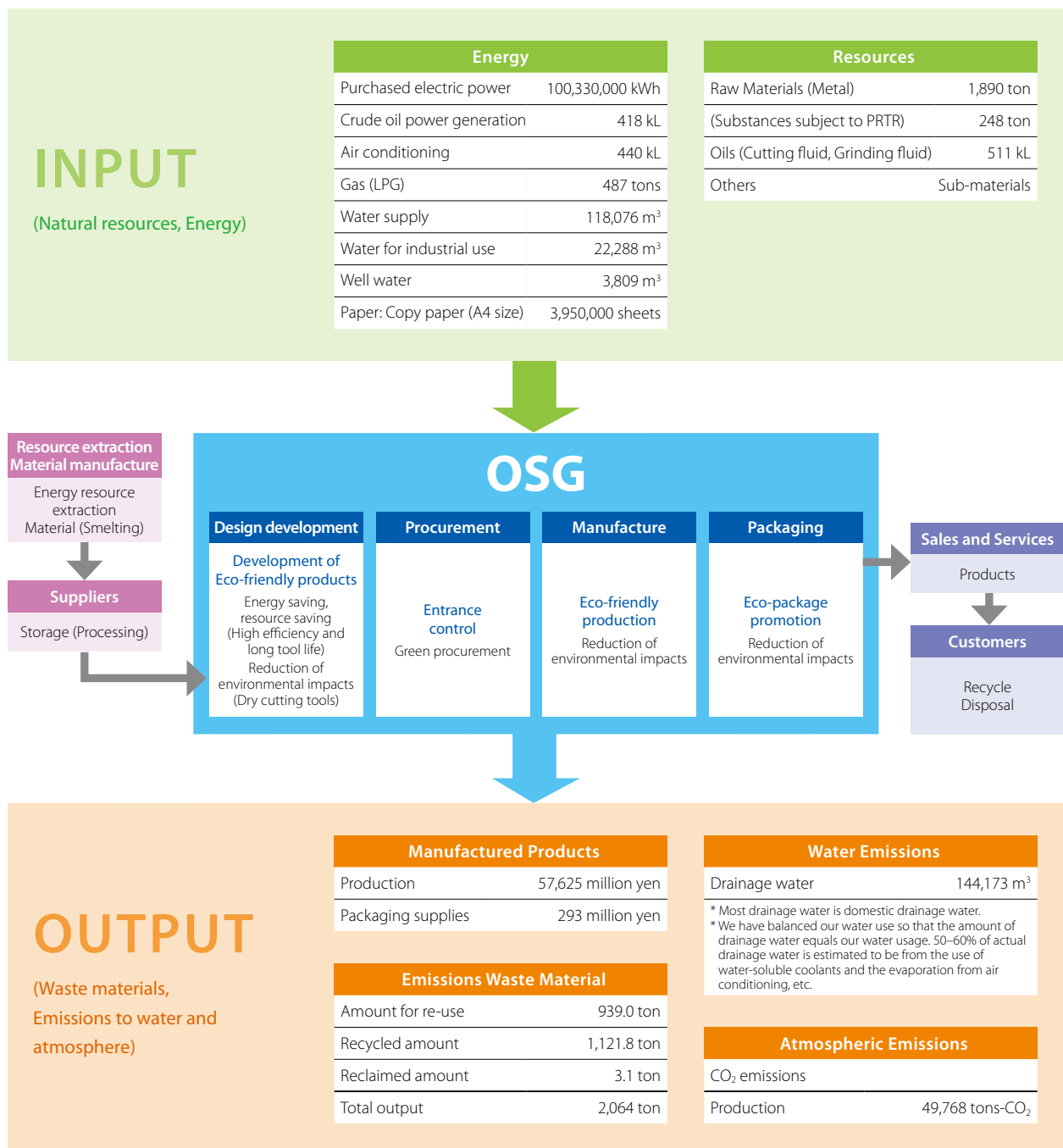
(Thousand yen)

Category	Item	Major activities	Investment in equipment
1 Positive costs for achieving environmental targets	Pollution prevention costs	—	0
	Global environmental conservation costs	Updating air conditioning heat source, switching to LED lighting, etc.	223,520
	Resource environmental costs	—	0
			Subtotal 223,520
2 Maintenance costs for environmental management system	Labor costs associated with environmental conservation activities	Secretariat operating, management operating	15,000
	Costs of environmental education and its preparation	Participation in seminars, preparation of Environmental Report	488
	Costs related to environmental audits	External examination, maintenance of registration	998
	Costs of environmental regulations	Measurement of specific chemical substances, etc.	0
	Costs of waste disposal and recycling	Waste disposal	45,066
	Costs of circulation measurement	Various environmental measurement and analysis	4,574
	Environmental conservation costs in social activities	Activity costs for The Japan Cutting & Wear-resistant Tool Association Environment committee	200
		Subtotal 66,326	
3 Compensation costs for environmental damage	Costs for improvement of contaminated soils and recovery of destroyed nature	—	0
			Subtotal 0
			Total 289,846
4 Effects of environmental conservation	Total of environmental improvement effects	Updating air conditioning heat source/transformer, energy saving by LED lighting	37,169
			Total 37,169



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.



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	634.6 tons
Cardboard boxes (sold for re-use)	76.4 tons
Waste oil (sold for re-use, recycled)	420.2 tons
Oil sludge (sold for re-use, recycled)	174.5 tons
Diatomaceous soil (sold for re-use, recycled)	489.5 tons
Waste grinding wheels (recycled)	49.6 tons
Waste plastic (recycled)	65.3 tons
Wood chips (recycled)	82.1 tons
Others (recycled)	68.6 tons
Total	2,060.7 tons

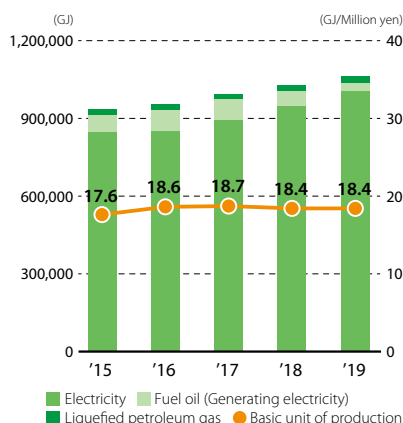
Reductions in Environmental Impacts

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.

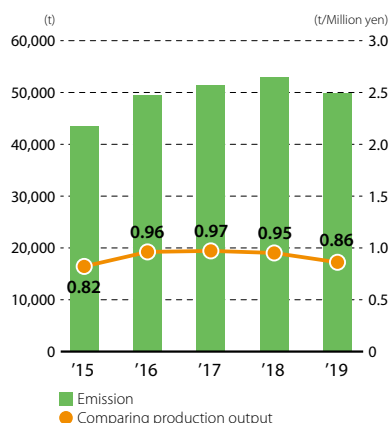
Energy Consumption

By promoting the replacement with energy-efficient air conditioners and the switch to LED lighting across the entire company, our energy consumption per unit of production remained the same level as the previous fiscal year at 18.4 GJ/million yen.

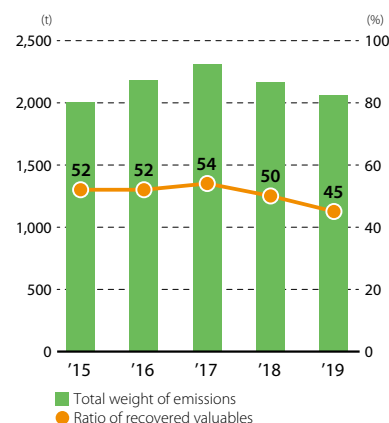
Energy Consumption



CO₂ Emissions



Waste Emissions and Valuable Materials Ratio



CO₂ Emissions

Through the installation of energy-efficient equipment to reduce CO₂ emissions, our CO₂ emissions per unit of production improved significantly by 9% compared to the previous year.

Waste Emissions and Valuable Materials Ratio

In FY2019, we reduced the amount of waste by 5% year-on-year through our continuous efforts to reduce waste and recover valuable materials from waste. On the other hand, the recovery rate of valuable materials was 5% down on the previous year due to the decrease in the amount of valuable materials recovered from waste.



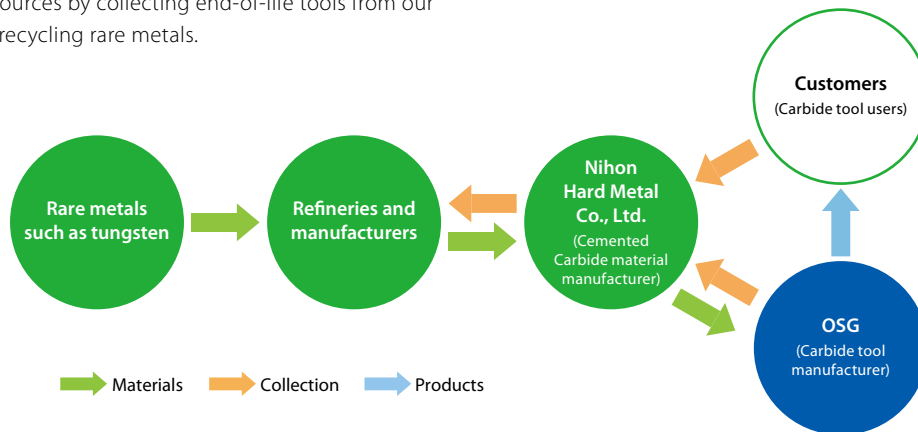
Eco-Friendly Products and Services

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.

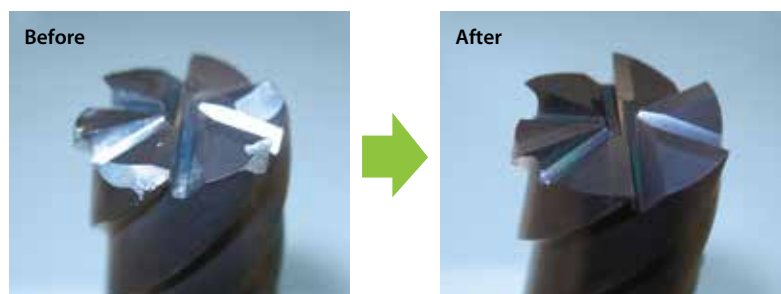
OSG group promotes recycling of carbide tools. For customers' CSR activities and zero-emission promotion, we utilize these resources by collecting end-of-life tools from our customers and recycling rare metals.



Regrinding Services

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

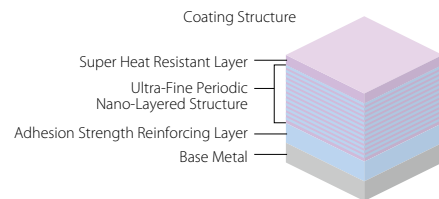
These tools can be returned to their original as-new condition by regrinding. OSG group provides regrinding services and meets customer's various needs.



Carbide Ball End Mills for High-Hardness Steels, AE-B-H Series

Adopting the newly developed DUOREY coating ideal for high-hardness steels

The AE-B-H series is coated with OSG's original DUOREY coating with superior heat resistance and high toughness optimized for high-hardness steel milling. The ultra-fine periodic nano-layered structure provides high chipping resistance, enabling longer tool life.

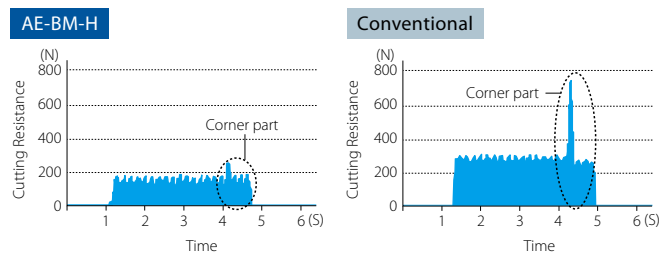


New innovative DUOREY coating

4-flute high-efficiency carbide ball end mill, AE-BM-H

Pursuing high-efficiency milling

The AE-BM-H features a sharp spiral curve for reducing cutting resistance compared to conventional specifications. In addition, the unequal flute spacing geometry enables greater control of harmonic vibration commonly generated during milling with multiple flutes in hardened steels, thereby allowing higher efficiency milling.

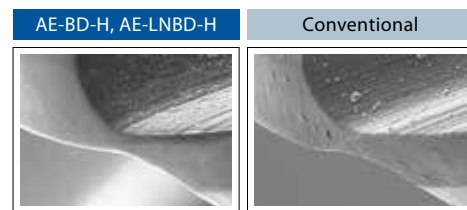


Effects of sharp spiral curve and unequal flute spacing enable stable milling with low resistance.

2-flute high-precision finishing carbide ball end mill / long neck carbide ball end mill, AE-BD-H / AE-LNBD-H

Achieving long tool life and high-quality surface finish

The AE-BD-H and AE-LNBD-H are designed for high-precision finishing in high-hardness steels. By processing with a smooth surface treatment to remove hard foreign substances called droplets, the surface quality has significantly improved.

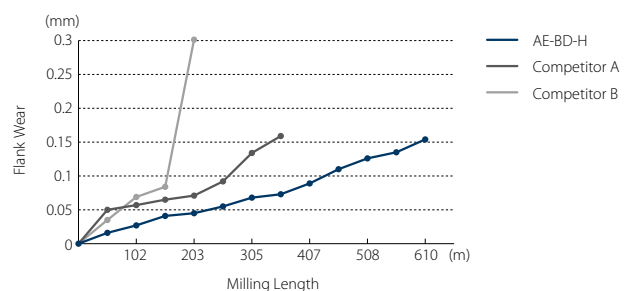


Smooth surface treatment (excluding AE-LNBD-H that are R0.25 or under)

OSG's latest carbide ball end mill for high-hardness steels, AE-B-H series

The die and mold industry has been demanding for shorter production time than ever before. Distortion caused by heat treatment and time reduction of heat treatment are being frowned upon, prompting a greater call for capabilities to directly mill high-hardness steels. In addition, requirement for higher precision is also increasing. In order to fulfill the current industry standard, OSG has developed three new products to accommodate these needs. The AE-B-H series contributes to not only faster mold production and higher precision but also the reduction of waste with increased tool life.

Tool	AE-BD-H R5x30	Competitor
Work Material	SKD11 (60HRC)	
Milling Method	Pocket Milling	
Cutting Speed	150mm/min (4,800min ⁻¹)	
Feed	870mm/min (0.09mm/t)	
Depth of Cut	Ap=0.2mm, Pf=0.5mm	
Coolant	Air Blow	
Machine	Horizontal Machining Center	





As a good corporate citizen, OSG plays an active role in sustaining society's development and fulfills social responsibilities through open communication with all stakeholders.

Together with Customers

OSG offers products that enable high-precision machining with high efficiency in order to help customers reduce their environmental impact. Aiming to turn our customers' dreams into reality, we will strive to achieve the highest level of customer satisfaction through providing products and services that meet and exceed the customers' expectations.

Quality Management System

OSG has been providing excellent products and services with which customers are satisfied while protecting the environment. Based on the principles of the quality management system, "customer focus" and "continual improvement", we will continue to enhance customer value through the efforts of each employee of the OSG group.

Under the quality certification system of OSG, to establish a quality assurance system which can provide a world-class quality trusted by customers, we conduct quality system audits toward global expansion.



INTERMOLD 2019 - Our products displayed by theme

Participation in Various Exhibitions

As a comprehensive cutting tool manufacturer, OSG actively participates in exhibitions and holds seminars to enhance communication with our customers through our products.

These photos are of our latest exhibitions at home and abroad.



EMO 2019 - OSG booth crowded with customers

Exhibitions in 2019

INTERMOLD 2019	April, 2019
EMO 2019	September, 2019
MECT 2019	October, 2019



MECT 2019 – OSG booth



MECT 2019 – The A brand series, carbide ball end mills for high-hardness steel

Communication with Society

Aiming to strengthen the relationship with the local community, we will contribute to the sustainable development of society and fulfill our social responsibility as a company.

■ Interaction with Local High School Students

On February 6, 2019 (Wed), we gave lectures entitled "Learning about our hometown" and "Going out into society" to 24 students of Shinshiro Higashi High School Tsukude Branch.

After the lectures, we received words of thanks from the school principal saying "It was impressive that the students were actively participating in the lectures. We will apply what we learned to job hunting activities and studying for entrance examinations."



Mr. Saigo, a lecturer who talks about a kind of bee called "Hebo"

■ Developing a Disaster-resistant Forest

On March 16, 2019 (Sat), a forest maintenance volunteer activity was held at Toyohashi National Forest in Mt. Ishinomaki.

It started with the aim of creating a forest that is resistant to typhoons and heavy rain by planting saplings to grow evergreen trees on the land damaged by a typhoon in 2009.

Weeding work called "shitagari" is carried out to protect grown saplings from weeds.



Participants of weeding work

■ Picking up Trash at Workplace Surroundings

From May to June every year, we carry out cleanup activities to help beautify the local environment under the direction of the Safety and Health Committee at each office. Through this activity, each employee raises awareness of environmental issues.



Picking up trash after lunch

■ Helping Make Our Satoumi Clean

On October 6, 2019 (Sun), we took part in the 11th Satoumi Beach Cleanup Activity held in Tahara City, Aichi Prefecture. Aiming to leave a beautiful Satoumi in the future, over 2,000 people from across the country gathered to pick up trash on the beach.

Not only driftwood and empty cans, but also household garbage was scattered on the beach. Microplastics from plastic debris have a significant impact on marine ecosystems. We will continue to participate in this activity to protect the nature environment and contribute to the community.



Picking up trash on the beach



■ Osawa Scientific Studies Grants Foundation: Awarded a Record High of 81.83 Million Yen in Grants

In fiscal 2019, Osawa Scientific Studies Grants Foundation provided a total of 81.83 million yen in grants to 32 researchers. Since its establishment in July 1991, a total of 838 million yen has been granted to a total of 668 researchers for 29 years. These new research results contribute to the development of the machine tool industry.

The thought of the founder, the late Hideo Osawa, “I would like to financially support researchers engaged in research in the field of science and technology”, has been being positively taken over.



Grant recipients – The 2019 OSG Fund Presentation Ceremony

Recognition by Society

Evaluation by third-party for business activities in 2019

■ Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology

In fiscal 2019, 2 persons from OSG received “The Award for Creativity” for contribution to technical improvements in the field of work through outstanding creativity.

We have received 19 awards for 10 consecutive years since 2010 and 21 persons were recognized.



Mr. Morita (left) and Ms. Imaizumi (right), recipients of award

■ The 2019 “Cho” Monodzukuri Parts Grand Award: Machine and Robot Parts Award

OSG’s end mills for additive manufacturing, “AM-EBT” and “AM-CRE” were awarded the “Machine and Robot Parts Award” at the 2019 “Cho” Monodzukuri Parts Grand Award sponsored by The Monodzukuri Nippon Conference and Nikkan Kogyo Shimbun.

This award, which honors contributions to the development of Japanese industry and society, is given to parts and materials that play a significant role in helping to address the challenges faced by the Japanese manufacturing industry such as the declining birthrate and aging population, environmental conservation, stable supply of resources and energy, and intensifying international competition.



Mr. Nakanishi (right), recipient of award



Environmental Data by Factory

INPUT

Energy Input (per year)

	FY2018	FY2019
Purchased electricity	38,060,000 kwh 100%	40,100,000 kwh 105%
Heavy oil for Power generation	612 kL 100%	418kL*2 68%
Heavy oil for Air conditioning	853 kL 100%	415 kL 49%
LPG for Surface treatment	109 t 100%	115 t 106%
Water (Tap water)	44,894 m ³ 100%	35,463 m ³ 79%

*2 Reduced the use of in-house power generation

OUTPUT

Emissions of CO₂ and Industrial Waste*1

	FY2018	FY2019
CO ₂ emissions	22,419 t 100%	18,328 t 82%
CO ₂ emissions per unit	1.08 t/million yen 100%	0.75 t/million yen 70%
Industrial waste emissions	661 t 100%	661 t 100%

*1 Valuable materials are not included in industrial waste emissions.

Yana Factory



Shinshiro Factory



	FY2018	FY2019
Purchased electricity	23,860,000 kwh 100%	25,970,000 kwh 109%
LPG for Air conditioning	332 t 100%	370t 111%
Water (Tap water)	57,669 m ³ 100%	60,471 m ³ 105%
Water (Industrial water)	23,803 m ³ 100%	22,288 m ³ 94%

	FY2018	FY2019
CO ₂ emissions	12,337 t 100%	11,868 t 96%
CO ₂ emissions per unit	0.92 t/million yen 100%	1.12 t/million yen 122%
Industrial waste emissions	199 t 100%	204 t 103%

*1 Valuable materials are not included in industrial waste emissions.

Toyohashi Factory



	FY2018	FY2019
Purchased electricity	11,170,000 kwh 100%	10,920,000 kwh 98%
Heavy oil for Air conditioning	0kL —	0kL —
Water (Tap water)	7,497m ³ 100%	7,043m ³ 94%

	FY2018	FY2019
CO ₂ emissions	5,318 t 100%	4,990 t 94%
CO ₂ emissions per unit	0.98 t/million yen 100%	0.92 t/million yen 94%
Industrial waste emissions	178 t 100%	171 t 96%

*1 Valuable materials are not included in industrial waste emissions.

Oike Factory



	FY2018	FY2019
Purchased electricity	18,100,000 kwh 100%	18,660,000 kwh 103%
Water (Tap water)	5,454 m ³ 100%	6,286 m ³ 115%
Water (Well water)	160 m ³ 100%	0 m ³ *3 0%

*3 Well water is no longer used because of stopping the use of LPG for air conditioning.

	FY2018	FY2019
CO ₂ emissions	8,694 t 100%	8,528 t 98%
CO ₂ emissions per unit	0.51 t/million yen 100%	0.50 t/million yen 97%
Industrial waste emissions	106 t 100%	143 t 135%

*1 Valuable materials are not included in industrial waste emissions.

Inquiry

OSG website
<http://www.osg.co.jp/>

IR information
http://www.osg.co.jp/about_us/ir/

OSG Corporation Environmental Report 2020

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Contact us

For feedback or questions about this report, please contact us using the information below.

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