

Forest-In Office

Amada Green Action

AMADA Group
Environmental and Social Report



2018

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■Editorial Policy

This content consists mainly of the environmental activities of AMADA HOLDINGS CO., LTD. and the AMADA Group in Japan.

This report is intended for the various stakeholders of the company. The report is designed to provide an overview of the environmental activities and social contributions of the AMADA Group

■Referenced guidelines

Environmental Reporting Guidelines 2012 of the Japanese Ministry of Environment, ISO26000

■Issues

2018 edition Published Mar. 2019

■Scope of the content

FY2017 and first half of 2018 (Apr.2018 ~ Sept.2018)

Relevant organizations : 13 domestic and 43 overseas companies

■About the name "Forest-in Office"

"Forest-in" is a neologism created by AMADA.

The AMADA Group seeks to be an office of the forest, rather than an office in the forest.

The term thus refers to AMADA as "an office of the forest" that promotes activities that protects the natural environment.

AMADA Group Environmental Declaration

AMADA Group aggressively promotes environmental activities to its management in order to realize sustainable development of its business and society. AMADA will help to build a bright and prosperous future for people around the world by optimally utilizing the engineering capabilities we have cultivated, and by providing environmentally-friendly, energy-saving products as a general manufacturer of metalworking machinery.

"Linkage through Eco-conscious Manufacturing"

AMADA Group aspires to become a business enterprise to link with customers, society and the world through eco-conscious manufacturing.

Producing eco-friendly machine at eco-friendly business establishment

All AMADA Group's operations are carried out with the aim of achieving optimal compatibility between environmental preservation and business activities through promotion of energy -and resource- saving efforts.

Our eco-friendly merchandise assists customers' to manufacture eco-friendly products

AMADA Group's eco-friendly products enable customers to manufacture energy savings and highly efficient products at their plants.

Creating eco-friendly environment at customers' plants

AMADA Group contributes to the creation of eco-friendly environments at customers' plants by utilizing its accumulated environmental know-how.

Environmental policy

◇AMADA Group's environmental principles

AMADA Group thinks that preservation of the earth, a small planet in macrocosmos, for the next generation is the biggest theme for human beings. Based on this idea, AMADA Group positions environmental preservation as one of its important management issues, and is committed to contributing to a prosperous future for people around the world through eco-friendly manufacturing, in order to pass down this beautiful earth to our descendants.

◇AMADA Group's environmental policies

1. Provision of products and services for preservation of the environment

Evaluate environmental load throughout the product life cycle, provide energy-saving and resource-saving products and services which are free of hazardous substances, and contribute to environmental preservation and the economy.

2. Reduction of environmental load in business activities

In every process of business activities, thoroughly pursue reduction of environmental load by promoting energy efficiency improvements, energy saving, resource saving and recycling. Also, aggressively promote green procurement and try to eliminate the use of hazardous substances.

3. Biodiversity activities

Grasp effects of business activities on the natural environment and contribute to building a biodiversity-nurturing society in concert with stakeholders.

4. Compliance with environment-related laws

Comply with environment-related laws and other agreements concluded with stake holders.

5. Continuous improvement of environment management system

Build an environment management system and make continuous improvement of it. Grasp the effects of business activities, products and services on the environment. Set environmental goals and targets and reduce environmental load as well as prevent contamination.

6. Enhancement of education about environment

Provide education aimed at environment preservation to improve employees' sense of responsibility as a member of the company and also boost awareness of environment preservation.

AMADA Group's management philosophy

1. Growing together with our customers

Our company has been sharing this philosophy as a starting point for all of our business activities since its formation. We believe that the creation and provision of new values based on customers' perspectives will strengthen the relationship of mutual trust between our customers and the AMADA Group, and become a source of mutual development.

2. Contribute to the international community through our business

Our company recognizes that contributing to "manufacturing" conducted by our customers throughout the world leads to the development not only of local communities, but also the international community as a whole, and we conduct our business activities with the aim of providing the highest quality of solutions in each market around the world by optimally distributing our group's management resources.

3. Develop human resources who pursue creative and challenging activities

Rather than being content with the present situation, we are constantly in search of new and better ideas to put into action in order to improve and enhance our business activities. This is the AMADA Group's basic philosophy of human resource development, and we believe that AMADA's unique corporate culture will be further developed by continuing to practice this philosophy.

4. Conduct sound corporate activities based on high ethics and fairness

We promote transparency and we comply with regulations in the AMADA Group's management and in all aspects of its business activities, and strive to further enhance its corporate value while conducting sound activities.

5. Take good care of people and the earth's environment

By treating the AMADA Group's stakeholders (such as shareholders, customers, business partners, employees and local residents) and the global environment with respect, we strive to continue to be a good company for both people and the earth.

Top Message

Recognizing the solution of social issues as one of the key issues of management, we will contribute to reaching international targets.



**Chairman and CEO
Mitsuhiro Okamoto**

I would like to express my sincere thanks for your continued understanding and support of the AMADA Group.

The AMADA Group celebrated its 70th anniversary in September 2016. Since our founding in 1946, we have conducted corporate activities with a mission to contribute to society through monozukuri (product creation). In recent years, the environment surrounding the corporation has been rapidly globalizing and diversifying, and we have recognized that further corporate reform is necessary in anticipation of the 100th anniversary.

Three years have passed since the adoption of the COP21 Paris Agreement, an international framework for climate change, and various efforts are being made as the importance of global warming countermeasures has become a common understanding of the world. Furthermore, the international community has set Sustainable Development Goals (SDGs) in order to achieve a sustainable society. SDGs seek to create a society that can resolve the problems of poverty and health, where all people can use clean energy, while enhancing economic growth and industrial bases. Companies are expected to play increasingly important roles as individual members of society, while at the same time fulfill their growing responsibilities as corporations.

The AMADA Group sees low-carbon technology development and business development in anticipation of SDGs as a growth opportunity. Under the five-year medium-term management plan TASK 3 • 2 • 1 that began in fiscal 2016, based on infrastructure such as manufacturing and sales, we have formulated a business strategy as well as a local strategy for sustainable growth.

In addition to growing areas such as the laser business and the automation business, our business strategy focuses on the after-sales business that generates stable earnings.

As for laser machines that are in increasing demand as production technology suitable for variant production, we are further expanding the market ahead of our competitors, taking advantage of the fiber laser oscillators developed in-house. This fiber laser achieves high-efficiency processing that consumes 1/3 the power consumption of conventional CO₂ lasers. Furthermore, the ENSIS-AJ series, which incorporates AMADA's unique beam variable technology, can reduce power consumption by approximately 30% even for highly efficient conventional fiber lasers, resulting in significant energy savings.

In addition, in order to solve problems in manufacturing sites such as shortage of skilled workers and the rising cost of labor, we are actively proposing automation technology beginning with robots.










In the after-sales business, we are working on the transition to a proposed business model, such as supporting stable operation by IoT-based preventive maintenance and remote diagnosis, and utilizing accumulated data to contribute to a higher operation rate and improved processing technology.

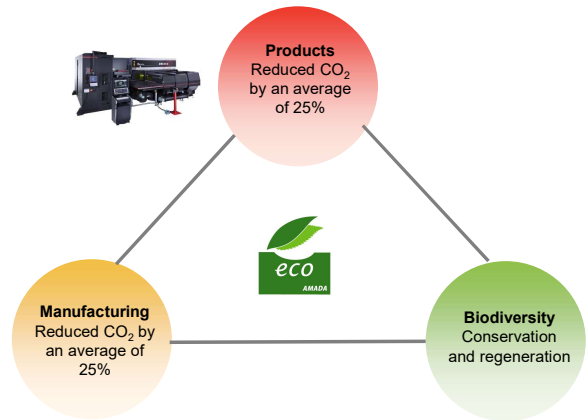
As a regional strategy, the North American market, where monozukuri manufacturing is making a comeback will be our priority area to carry out aggressive investment strategies. Meanwhile, we will focus on developing emerging markets such as the ASEAN.

The AMADA Group is deeply aware of our responsibilities and roles in solving social issues in the future. Recognizing that environmental protection and social contribution are key issues of management, through eco-friendly manufacturing, which is the strength of the AMADA Group, we will actively contribute to reaching international targets.

AMADA Group Promotes Sustainable Development Goals (SDGs) Initiatives

AMADA Group's Key Objectives and SDGs for Solutions

AMADA Group's Key Objectives	Subjects for SDGs solutions
Preventing global warming <ul style="list-style-type: none"> Reducing CO₂ emissions in the product life cycle Reducing CO₂ emissions by saving energy and resources in business processes 	 Goal 7: Affordable and clean energy
	 Goal 9: Industry, Innovation, and Infrastructure
	 Goal 13: Climate action
Effective utilization of resources	 Goal 11: Sustainable cities and communities
	 Goal 12: Responsible consumption and production
Regulated chemicals control	 Goal 3: Good health and well-being for people
	 Goal 11: Sustainable cities and communities
	 Goal 12: Responsible consumption and production
Biodiversity	 Goal 15: Life on land



「AMADA GREEN ACTION 2020」

AMADA Group promotes Sustainable Development Goals (SDGs) initiatives.

In September 2015, the 2030 Agenda for Sustainable Development was adopted at the United Nations General Assembly held at the UN Headquarters in New York.

This agenda raised 17 Sustainable Development Goals and 169 targets as action plans for humanity, the earth, and prosperity. Every nation that is a member of the UN is required to work hard to resolve the goals for sustainable development between 2015 and 2030, as shown in the figure on the right.

The AMADA Group will promote efforts to achieve these goals for sustainable development.

SUSTAINABLE DEVELOPMENT GOALS 17 GOALS TO TRANSFORM OUR WORLD



Businesses of AMADA Group

As a comprehensive manufacturer of metalworking machinery, the AMADA Group conducts five businesses to respond to our customers' every monozukuri manufacturing need based on the sheet metal fabrication machine business, metal cutting machine business, grinding machine business, stamping press business and precision welding machine business.

Since our founding, the AMADA Group has created and provided new values that reflect the customer's viewpoint. We believe that this strengthens the trusting relationship between the AMADA Group and our customers as a source of development for both.

By promoting these businesses, we are contributing to global monozukuri manufacturing and developing our businesses to provide the best solutions in each market in the world as business activities that lead to the development of local and international communities.

AMADA HOLDINGS CO., LTD.

- **AMADA HOLDINGS CO., LTD.**
(Group strategy, management planning, etc.)
Sheet metal fabrication machine business
- **AMADA CO., LTD.**
(Sales, service business, development, and manufacture of sheet metal fabrication machines)
- **AMADA TECHNICAL SERVICE CO., LTD.**
(Sales and Service business of Sheet metal fabrication machines)
- **AMADA AUTOMATION SYSTEMS CO., LTD.**
(Manufacture the automation equipment for sheet metal fabrication machines)
Metal cutting, machine tool business and stamping press business
- **AMADA MACHINE TOOLS CO., LTD.**
Precision welding machine business
- **AMADA MIYACHI CO., LTD.**
- Overseas AMADA Group companies
 - North American sales companies
 - European sales companies
 - Other overseas companies
- Domestic Group companies

AMADA CO., LTD.

AMADA TECHNICAL SERVICE CO., LTD.

Sheet metal fabrication machine business

Sheet metal parts are used not only in cell phones, smartphones, clips and mechanical pencils we use every day, but also in traffic signals, elevators, an aircraft and rockets.

AMADA's sheet metal fabrication machine business offers all solutions from machines through control software and peripheral devices to maintenance.



- Blanking machines
- Bending machines
- Welding machines
- Software

Sheet metal fabrication machine business

Laser machines

ENSIS AJ SERIES



Machines to open holes and cut or weld thin sheets of metal (sheet metal) using a laser beam.
Carbon dioxide lasers are often used for opening holes and cutting. A full line of oscillators is available for both fiber lasers (made in-house) and CO₂ lasers.

Punch and Laser combination machines

ACIES AJ SERIES



The machine is capable not only for cutting and piercing of sheet-metal but also, the forming such as extrusion and tapping that were done by other machineries.

Bending machines

EG 4010



Machines for bending thin sheets of metal (sheet metal) between an upper and lower tooling. Also referred to as press brakes.

Welder

FLW ENSIS



Welding is the process of joining metals.
The three major types of welding are fusing, crimping, and brazing.

AMADA AUTOMATION SYSTEMS
CO., LTD.

**Metal cutting machine
business**

- Band saw machines
- Structural steel fabrication machines

The machines of AMADA MACHINE TOOLS are at work in many and varied fabrication applications from minute precision parts for "medical equipment to large steel frames for high-rise buildings, bridges and other structures.



**Stamping press
business**

- Stamping press machines

AMADA MACHINE TOOLS
CO., LTD.



**Grinding machine
business**

- Grinding machines
- Electrical discharge machines



**Precision welding
machine business**

AMADA MIYACHI is providing throughout the world welding and processing solutions for automotive body panels and electrical equipment, LCD displays, personal computers, medical devices, and other familiar products.

- Laser welders
- Fine spot welders
- Laser markers
- Systems



AMADA MIYACHI CO., LTD.

Metal cutting, machine tool business and stamping press business

Band saw machines

HPSAW 310



The metal cutting machine cut metal round bars and structural steel with band saw blade or circular saw blade.

Grinding machines

DV1



The grinding machine is a machine tool that rotates the grinding wheel in the high speed, and finishes up the structure precisely.

Stamping press machines

**SDE 2017
GORIKI**



Machines for processing thin metal plates with toolings. Used in processes for manufacturing electronic components such as terminals, and products such as automotive parts that require drawing processing.

**Precision welding
machine business**

Fiber laser welders

ML-6810C



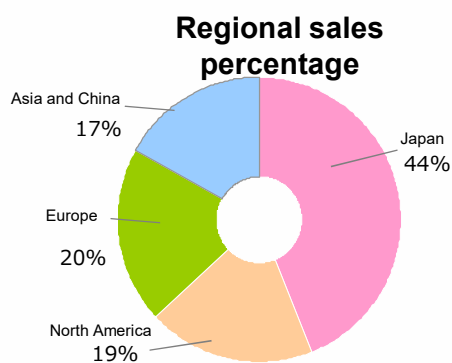
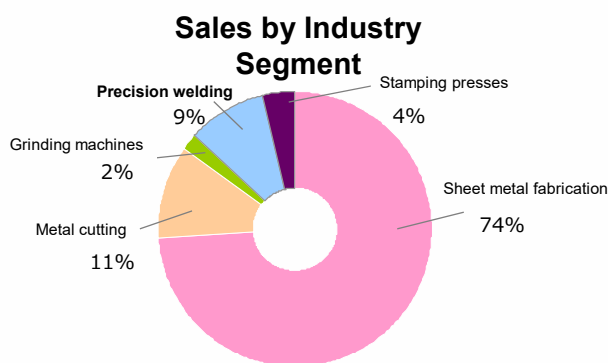
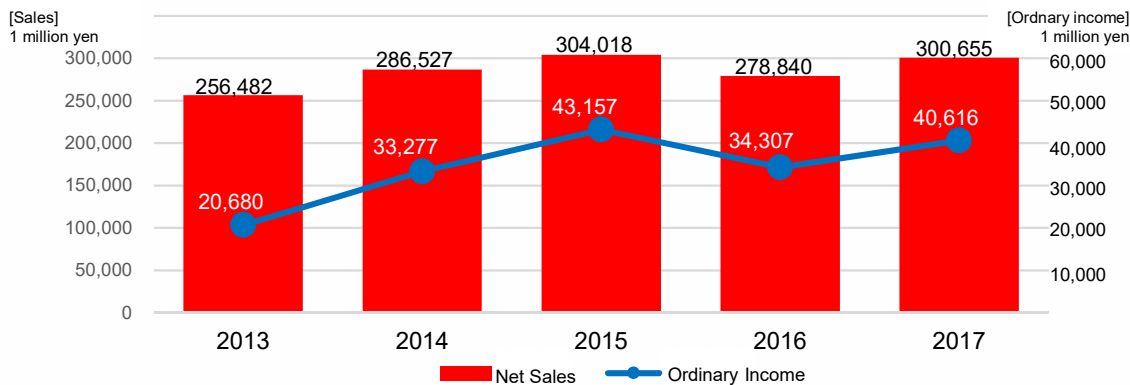
These devices are used for fine welding of various metals using laser beams.

※Visit our website for detailed information about the AMADA Group's products. →<http://www.amadaholdings.co.jp/>

Business Outline

Overview of performance and employees

Evolution of results



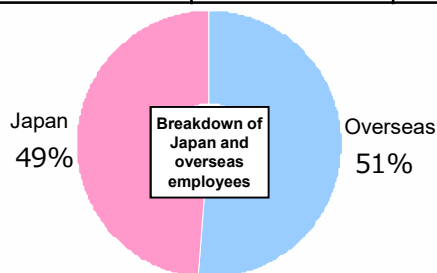
※Visit our website for detailed IR information. Website: <http://www.amadaholdings.co.jp/>

Employee Data

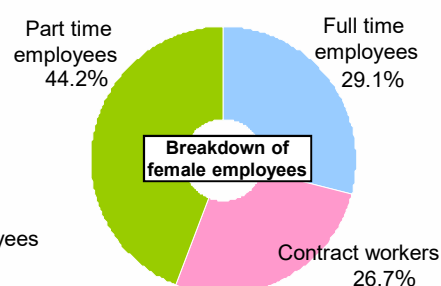
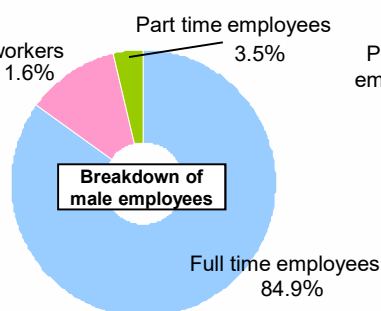
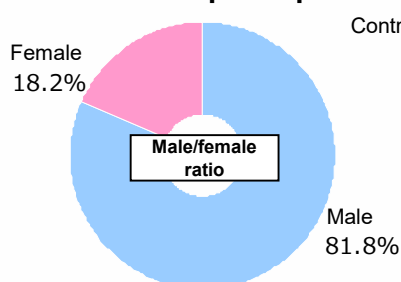
Number of employees (Global)	NUMBER OF PEOPLE				
	2013	2014	2015	2016	2017
	7,956	8,083	7,955	8,005	8,228

Japan and overseas Number of employees

- Overseas Group companies Employees 4,232
- Domestic Group companies Employees 3,996



Domestic Group companies



Corporate Governance

The AMADA Group believes that sound activities based on high ethical standards and fairness are crucial. AMADA Group will work to enhance corporate governance built on ensured transparency and thorough compliance with laws and regulations throughout management and operations, in line with the following philosophy.

Basic concept of corporate governance

- (1) Strive to ensure the rights and equitable treatment of shareholders.
- (2) Strive to engage in appropriate collaboration with stakeholders other than shareholders.
- (3) Strive to ensure appropriate disclosure and transparency of information.
- (4) Strive to have the Board of Directors appropriately fulfill their roles and responsibilities with a clear understanding of fiduciary duty and accountability to shareholders.
- (5) Strive to engage in constructive dialogue with shareholders.

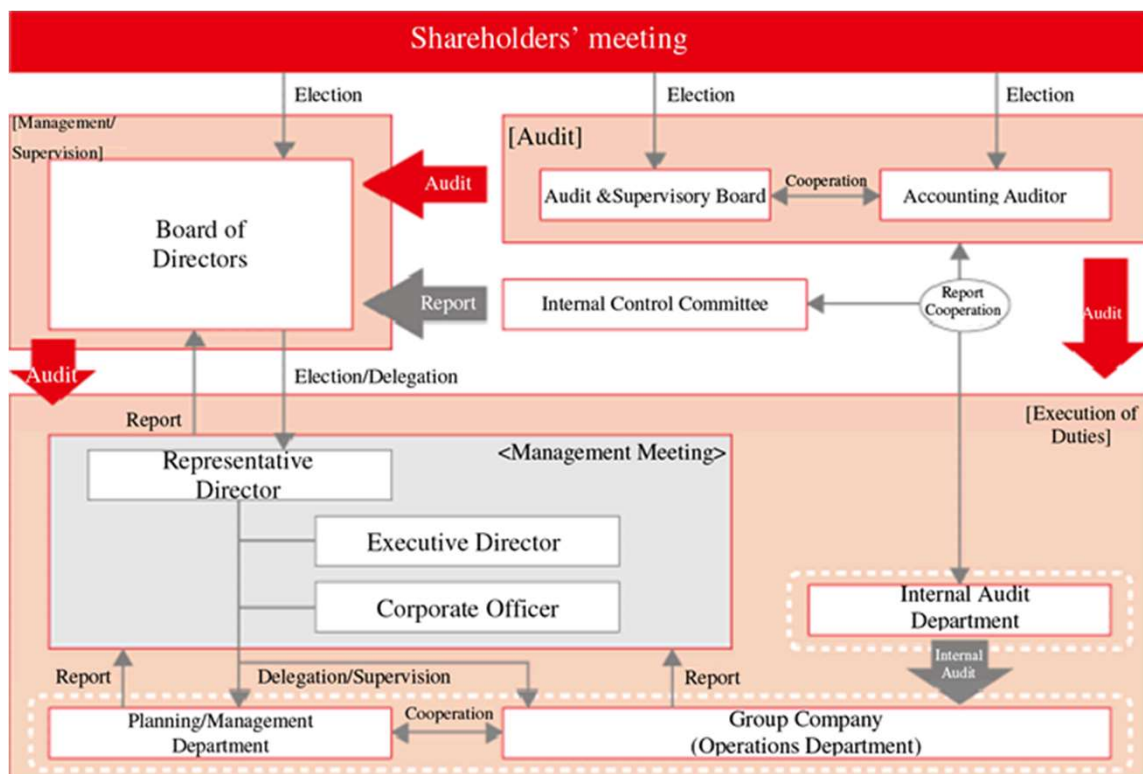
Structure of corporate governance

The Board of Directors is an entity that makes decisions on statutory matters and other significant items concerning the overall management, while supervising business execution undertaken by directors.

The Board of Directors is made up of eight directors including three outside directors, and holds meetings as required. Their structure enables swift and flexible management decision-making.

The Company also has an Audit and Supervisory Board of four members including two outside members. Entrusted with the mission of ensuring the sound management of the Company and increased social trust, the Audit and Supervisory Board Members attend the Board of Directors and other important meetings. They also supervise corporate governance by auditing sales reports from the directors, surveying and understanding the status of operations and finances, and examining important documents.

Going forward, the Company will continue to further enhance its organizational system and structure focusing on legal functions such as the General Meeting of Shareholders, Board of Directors, Audit and Supervisory Board and accounting auditors, as it strives to ensure accountability through prompt disclosure of management and financial information and proactive efforts in IR activities.



Introduction

Our Works

AMADA is a comprehensive manufacturer of metalworking machinery, a “total solution” company that contributes to the creation of products for global customers.

◆ Isehara Works (AMADA Holdings and others)

The Isehara Works are in Isehara City, which is almost in the center of Kanagawa Prefecture, and this is where the Amada headquarters and AMADA Solution Center are located.

The AMADA Solution Center is a place for providing “improvement suggestions” to our customers for solving their manufacturing issues.

It features an “Exhibition Hall” where people can get acquainted with our products, and serves the function of “demonstration processing” in which AMADA uncovers customers’ issues and proposes solutions. Our manufacturing proposals can be tested here with our equipment as well.

AMADA also manufactures toolings and tooling peripheral equipment, which are replacement parts for AMADA punching machines and bending machines.



Isehara Works

◆ Fujinomiya Works (AMADA)

The Fujinomiya Works (Fujinomiya City, Shizuoka Pref.) is in a scenic location on the south-west side of Mt. Fuji.

With responsibility for development and manufacture, this site is a source of innovation.

The Third Factory of Fujinomiya is the world’s largest laser factory that manufactures our latest laser machines, and it has the manufacturing capacity of 140 units per month.

The factory’s concurrent design system with the Development Center has made our front loading development*¹ and manufacturing system possible.

There are 4 Innovation Rooms at the Development Center, and with the aid of the latest design systems and video equipment, these rooms can be used by customers and development staff as creation spaces for cutting-edge development. As a result of the module design, created with 3-dimensional CAD, product manufacture can be tested from the design stage, thus allowing for modularization to a high degree of quality.



Fujinomiya Works

*1Front loading development: an effective development method where relevant divisions gather from the planning stage to study the products from multiple angles concurrently, and reduce the problems during the latter half of development.

◆ Toki Works (AMADA / AMADA MACHINE TOOLS / AMADA TOOL PRECISION)

Toki Works (Gifu Prefecture Toki City) is in charge of developing and manufacturing metal cutting machines, structuring machines and machine tools, as well as manufacturing sheet metal machines. In the cutting and structural business, we provide a total solution approach to cutting that maximizes machining performance with machines and blades. We also provide shaped steel processing systems to the steel-frame industry, which is seeing an increase in the size of components in cutting and hole-punching processes, along with a move towards high-speed processing and automatization. Its machine tool segment offers systems that generate precision and value-added products with automation. The company’s well-known creative product developments include profile grinding machines and combination lathe. In September 2017, the Toki Works tooling manufacturing factory started operation as a second base.



Toki Works

◆ Ono Plant (AMADA MACHINE TOOLS)

Ono Plant is located in Ono City, Hyōgo Prefecture, at the center of Higashi-Harima region, and this area is known for its metal industry from the old days as the manufacturer of blades.

Today, Ono Plant serves the functions of development and manufacturing of band saw blades as the backbone factory of the AMADA Group's consumable business.

With our unique technology and daily pursuit of "QCD"+ "I" (for "innovation"), we have acquired the number one share of the world bandsaw blade market.

Our plant in Japan works together with our affiliated factories in Austria and China to develop products incorporating the latest technologies in response to the needs of our customers worldwide.



Ono Plant

◆ Fukushima Plant (AMADA AUTOMATION SYSTEMS)

Since it began operations, AMADA AUTOMATION SYSTEMS (Nihonmatsu City, Fukushima Pref.) has handled automated equipment for systems, and in the sheet metal system sector it has grown into a pioneering manufacturer of sheet metal system equipment, backed up by a wealth of experience and achievement. This company has accumulated various manufacturing technologies and knowhow over the years. It plays an important role as a member of the AMADA Group, and serves as a well-trusted engineering partner of global sheet metal factories, based on providing total solutions for customers' issues.



Fukushima Plant

◆ Miki Plant (NICOTEC)

NICOTEC (Miki City, Hyōgo Pref.) manufactures and sells cutting tools, cutting machines, and cutting lubricants. Its headquarters is located inside the Isehara Works, and its manufacturing facilities are located in Hyōgo Prefecture.

The Miki Plant, located in Miki City—a place long known as "the city of hardware"—is mainly in charge of developing and manufacturing metal cutting tools such as bandsaw blades, hole saws, and coils. The hole saws, in particular, are developed as NICOTEC's original products.



Miki Plant

◆ Noda Works (AMADA MIYACHI)

AMADA MIYACHI (Noda City, Chiba Pref.) offers jointing and processing solutions in minute and precision fields to the global market. It manufactures, distributes, and maintains laser welding and processing machines and fine spot welders.

It is an "only one" company that possesses both laser and fine spot-welding technologies. With offices in 16 countries, it aims to expand its distribution and services.

We contribute to the world's manufacturing industry and at the same time tackle the challenge of developing and creating innovative technologies and products. Through superior services, we provide each customer with the ability to reduce their environmental load and with maximum economic rationality.



Noda Works

New facility becomes core of BCP

Disaster Management Energy Center (Isehara Works)

A new facility, the Disaster Management Energy Center was completed in September 2017. This will play a central role in BCP measures for the AMADA Group.

In readiness for emergency business continuity, the center has aggregated communication servers and power facilities and is equipped with evacuation facilities where 600 employees and people in the surrounding area can live for three days. In order to withstand earthquakes with a magnitude of 6 or more, the seismic performance has been greatly improved. Power, drinking water, and heat-essential for business continuity – will be supplied to each building.



[Outline of facility]

Scale: Two stories above ground
 Structure: Steel construction (seismic isolation)
 Building area: 1,093.12m²
 Total floor area: 1,430.50m²
 Height: 9.9m



Solar panels installed on the rooftop

Main features

◆ Power and communication equipment

The AMADA Group set up power outlets and servers to provide power, believing that in order to ensure the safety of personnel and maintain power and information communication in the event of an emergency, it will be necessary to reorganize headquarters infrastructure.

◆ Solar power generation

The rooftop is equipped with a solar power generator. The solar power generator is composed of 144 panels and can generate up to 33kWh to provide the Disaster Management Center with electricity during the daytime.

◆ Micro cogeneration units

Inside the facility, there are eight 35kW micro cogeneration units that can create power within Isehara Works as well as use exhaust heat for air conditioning. This equipment will handle power supply for the Works in the event of a disaster.



Micro cogeneration units

◆ Water supply and drainage system with BCP in mind

Normally, the well water filtration system produces potable water. In the event of an emergency, it will operate on emergency power and supply the Disaster Management Energy Center and headquarters building, among others. During a disaster, toilet drainage can be stored in the emergency draining tank in the underground pit, allowing 600 people use of the toilets for three days.



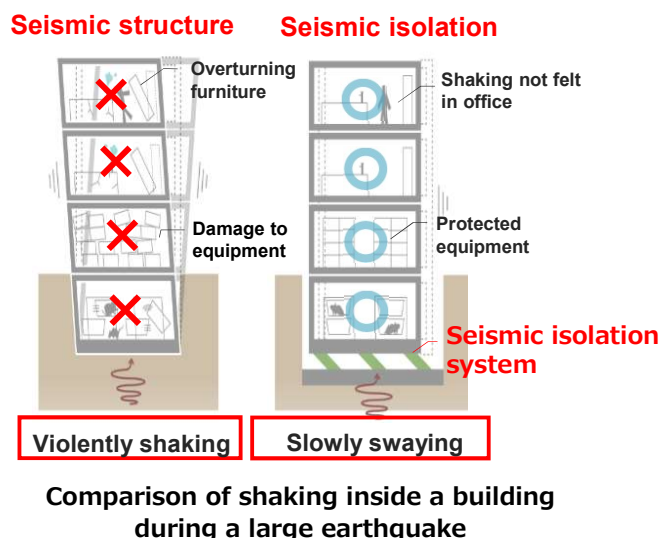
Well water filter

◆ **For business continuity and safety**

To ensure business continuity as well as safety and security at Isehara Works, the Disaster Management Energy Center was built as the core facility for the three vital functions: Control (business continuity command/disaster response command), Safety (securing human life), and Facilities (securing 24-hour operation).

As a command center for the AMADA Group worldwide, we have begun operation as a crucial facility that will maintain a global command tower function as a fully equipped iron fortress against all risks including earthquakes and other disasters.

Particularly in the case of earthquakes, seismic isolation devices have been installed between buildings and foundations to absorb strong jolts caused by large earthquakes. These will allow buildings to slowly sway in large motions during major earthquakes in order to maintain their functions and important facilities.



New Tooling Factory at Toki Works



T876 Factory (Toki Works)

A new T876 Factory manufacturing tooling for sheet metal processing has been established at Toki Works. Making use of the latest IoT technologies, the automated factory has been in operation since September 2017, making it possible for clients to place orders 24 hours a day, 365 days a year. At the T876 Factory, delivery time is significantly reduced (to a minimum of three hours) and by promoting automation, the production system can continuously be operated almost unattended. Further improvements are being made to reduce the defect rate in addition to strict temperature control to enhance accuracy.



[Outline of facility]

Scale : Two stories above ground
 Structure : Steel construction
 (seismic isolation)
 Building area : 5,494m²
 Total floor area : 5,834m²
 Height : 10.3m

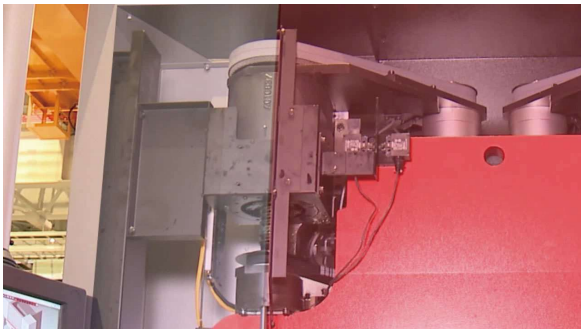
Introducing AMADA ECO PRODUCTS

The EG-4010 enables high-speed, high-precision bending of small pieces

Equipped with a drive system that employs a dual servo press (DSP), it realizes feed accuracy of 0.001mm with 2.2 times the productivity of conventional models.

By promoting intelligence and comfort in processing, such as NC equipped with built-in CAM and ergonomic design, lead time is shortened and operation made easier, resulting in high energy-saving performance.

- ◆ **Feature (1) High speed and high precision processing: New servo drive system: Dual servo press (DSP) mechanism**



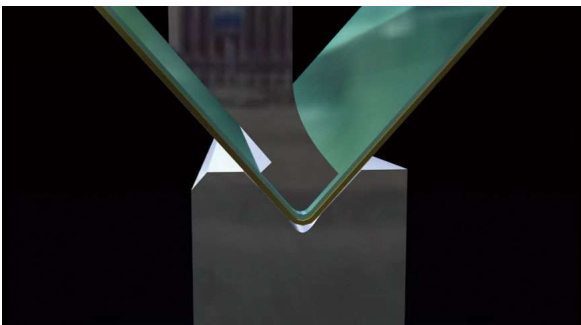
Two servo motors for processing and stroke enables high speed, high pressure processing while saving energy.

- ◆ **Feature (2) Intelligence of processing: AMNC 3i**



18.5-inch large-screen multi-touch LCD panel enables smartphone-like user-friendliness

- ◆ **Feature (3) Skill-free / High accuracy / Load control**

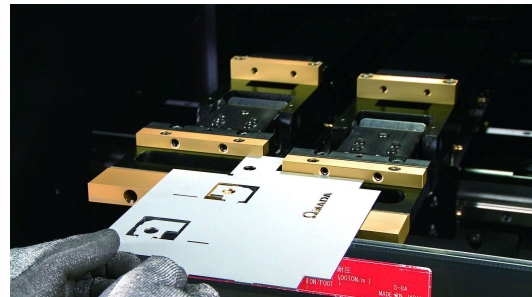


Controlling the angle with pressure easily enables 90° processing without a trial bend.



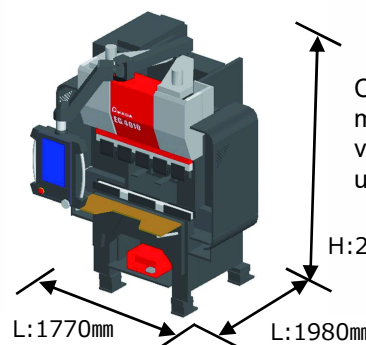
EG-4010

- ◆ **Feature (4) Stable gauging: New back gauge system**



Back gauge operates independently from front to back and left to right, adapting to the complex shapes of small pieces. Significantly improved visibility with titanium coating.

- ◆ **Feature (5) Precision processing of small pieces: Compact machine**



Compact yet powerful machine for use in various locations including urban areas.

◆ **Feature (6) Comfortable bending work:
Ergonomic design**

Standard pendant height adjustment system



NC operation, mold exchange, workpiece loading and unloading are possible while maintaining a natural posture, reducing the burden of processing.



Ergonomic design is applied to every aspect of the EG-4010

◆ **EG-4010 energy-saving performance**

	EG6013 improvement	EG4010 improvement	AMADA Eco Products Compliance Standard (for bending machines)
Energy-saving improvement (power consumption reduction)	11.2%	47.6%	≥10%
Productivity improvement (production cost reduction)	12.4%	11.2%	≥10%

※Comparison with AMADA's FMB-3613

Developer interview (1)

AMADA Bending Development Department Group Leader Takahashi

A Comfortable Machine

While maintaining the basic high-speed, high precision performance of the EG-6013, by pursuing space saving we were able to develop a comfortable machine for women and elderly people as well. I believe that it will gain acceptance by many customers at home and abroad.



Developer interview (2)

AMADA Bending Processing and Engineering Department Group Leader Fujishiro

A Captivating Machine

AMADA's first servo bender was the FMB-208, launched in 1992. The EG-4010 is a bending machine that goes beyond the EG-60 series and pursues ergonomics. The machine is equipped with improved productivity, safety (AMADA safety device AS-01), and fatigue resistance (in both sitting and standing work). Anyone who has experienced bending work will surely be captivated by this machine the moment they sit on it and step on the well-responding foot pedal!



Efforts to support the metal processing industry



Junior Management College (Management successor training)

The JMC is a training system to foster successors of management started by the late Honorary Chairman Isamu Amada in 1979 for the 30th anniversary of the establishment of AMADA Co., Ltd. The JMC program starts by learning about what a proprietor does. Furthermore, in various lectures based on the topics of Management, Monozukuri Manufacturing, Mentality, and others, students acquire a broad vision and strategies of practical management necessary to become successors and executives of management. Based on the knowledge obtained here, students will contemplate with their peers and master practical skills.

As business succession can lead to the loss of technology and employment, it is important to tackle as a social issue going forward. The Amada School is continuously promoting such efforts.

Nearly 1,000 have completed the JMC course. After completion of the program, exchanges are actively held across Japan between graduates of all years, not just their own. The Amada School helps the industry's development by supporting the education of its proprietors through the JMC program.



◆ Curriculum: Management

Learn the basics of corporate management and “ways of seeing and thinking” required of a proprietor.

[Key lectures]

- What is the work of a proprietor?
- Financial analysis, labor management of SMEs, and national measures
- Company tours, management strategy More



◆ Curriculum: Monozukuri Manufacturing

Learn the production management system that utilizes the basics of factory management in the manufacturing industry and IT.

[Key lectures]

- The 5S, basics of monozukuri manufacturing
- Use advanced technology: Use IoT for everything from monozukuri to management, from receiving orders to shipping More



◆ Curriculum: Mentality

Qualities required of management, methods of character-building, self-development, and how to take leadership

[Key lectures]

- Improving self-esteem (deepening self-understanding and creating a positive self-image)
- The life of a proprietor More



◆ Curriculum: Other

Gain a wide range of knowledge regardless of field

[Key lectures]

- Presentation-geared PC lesson
- Shared experiences of JMC alumni (both during and after course completion)
- Presentation: “Promoting my company to get business.” More

Main curriculum

- ◆ What is the work of a proprietor: Learn the basics of management and about what makes a strong organization.
- ◆ Company visits and monozukuri manufacturing: Visit two companies in the industry. There, have discussions with the management and learn first hand about how they conduct business on-site and their efforts to improve productivity such as using IE (Industrial Engineering).
- ◆ Financial analysis: Learn basics about company finances and analyze familiar data (reading financial statements, judging business conditions, financial management, dealing with financial institutions, etc.).
- ◆ Labor management of SMEs/ Strategic direction of SMEs: Learn about various labor-related laws that are revised each year, risk management, and compliance.
- ◆ National SME measures: Learn about SME support measures in Japan. (Type, benefits of use, cases of application, simulations for application, etc.)
- ◆ To become a proprietor: Learn the basics of strategic management. (Basics of CS management, management vision, formulation and development of strategies, personal target management, etc.)
- ◆ Life of a proprietor: This class has remained the same since the course began. Students who are close to completion are advised through stories about past graduates and the instructor's views on life.
- ◆ Presentation-gear PC lesson: Learn how to create materials and make a presentation. This is taught from the basics, so beginners can feel at ease.
- ◆ Talk Together: JMC graduates are invited to share their experiences about when they took the course and after completion. Interaction with the seniors will also lead to future network expansion.
- ◆ Presentation: "Promoting my company to get business": Students use the knowledge that they gained to present the strengths of their companies. They not only gain a deeper understanding of their company, but also find issues to tackle after course completion.

Voice of a graduate

Ichirō Inada, INADA Inc. (Class of June 2015)



JMC, a time to look at myself

During the 22 fulfilling days at JMC, I was able to come to terms with coming a successor. In order to become a proprietor, of course you need to possess a wide range of knowledge, but you also need strong power as a human being.

Through the lectures taught by unique instructors, I was able to learn about company management from various viewpoints. You need to analyze your company before you set a direction or strategy for your company. I especially felt the importance of finance. In this training, I also analyzed myself as a successor. As with corporate management, I understood that it is just as important to know myself, to conduct smooth communication with others. In the future, I will be sure to set aside time to take a close look in the mirror, to get a clear image of my vision for the future.

I learned a lot from the members in my class. While sharing our lives together, I had discussions with classmates with similar backgrounds and positions that I could never have in daily life. I will treasure these exchanges forever. Like a company, graduates of JMC 123 are part of an organization. Although it was only 22 days, being able to overcome many challenges together in a fun way gave me confidence in knowing that I can manage my company.

Amada School of Vocational Training Corporation Masahiro Sueoka, Chairman



The JMC is a training camp to "learn from example and gain from experience" for a total of 22 days – 12 in the first term and 10 in the second. Students gain a broad perspective as a proprietor as well as practical management skills. In addition to this, communication between peers in the same predicament leads to great encouragement and results.

The first 12 days are spent understanding the work of a proprietor and learning the basics of finance and law that are the basis of corporate management, as well as labor management. Based on this, students will develop an awareness of their own company, through discussions with the current president. The latter 10 days are spent studying the strategic direction of SMEs and basics of management, while analyzing the figures, environment, and conditions surrounding their own companies from multiple angles.

Meanwhile, students will experience the specific efforts of other companies and uses of cutting-edge technologies and then make a presentation of their future vision and determination as a proprietor.

Rather than following unilateral teaching methods, participants work together with fellow successors based on individually acquired knowledge to physically gain practical management skills. This is the basis of JMC education.

Mid-term environmental plan

	Themes of activities	Medium term goals (FY 2019)	Goals for FY 2017
Preventing global warming	<p>[Product Development] Contribute to the prevention of global warming by reducing CO2 emissions*1 throughout the entire lifecycle of a product</p>	<ul style="list-style-type: none"> Reduce average CO2 emissions of all products sold annually by 25% by 2020 (Benchmark year: 2009) Goal for 2019: 23.3% reduction 	<p>Reduction of CO2 through the release and sales promotion of eco-friendly products (Reduction rate: Overall: -20.0%, sheet metal machine: -38.0%, stamping press: -19.9%, metal cutting / machine tool: -12.2%, grinding: -10.1%)</p>
	<p>[Business Activities] Reduce CO2 emissions by reducing consumption of energy and resources</p>	<ul style="list-style-type: none"> "Intensity against benchmark year*2: 18.3% reduction" to cut average CO2 emissions of plants and offices by 18.3% by 2020 Compliance with the Revised Energy Conservation Act: 1% reduction/ year (5%/5 years) (Isehara Works / Fujinomiya Works / Toki Works / Ono Plant / Fukushima Plant) Goal for 2019: 16.8% reduction 	<ul style="list-style-type: none"> Reduce AMADA Group's CO2 by 19.3% from Benchmark year Comply with the Revised Energy Conservation Law (reduce intensity by 1%/year) (Isehara Works / Fujinomiya Works / Toki Works / Ono Plant / Fukushima Plant)
Effective utilization of resources	<p>Contribute to our recycle-base society by promoting the efficient use of limited resources</p>	<p>Achievement of zero emissions at plants</p> <ul style="list-style-type: none"> "Achievement of zero-emission ratio of 1% or less for the entire group by 2020" (1% or less of annual landfilled waste, by waste material weight) Goal for FY2019: zero-emission ratio of 1% or less across the entire AMADA Group <p>Initiatives aimed at creating a clean factory</p> <ul style="list-style-type: none"> Reduction of waste materials generated during the manufacturing process 	<ul style="list-style-type: none"> Maintaining of zero emission plants (Fujinomiya, Isehara, Toki) Initiatives towards achieving zero emission plants (Ono, Miki, Noda, Fukushima) Zero emission rate in the AMADA Group's plants: 1.0% (Isehara Works / Fujinomiya Works / Toki Works) Continuous improvement of IN-OUT measures
Regulated chemicals control	<p>Bolster initiatives regarding management of regulated substances</p>	<p>Product development with green procurement (Reduce the use of RoHS*3 directive chemicals)</p> <ul style="list-style-type: none"> RoHS compliance rate in all new product types: 100% Completion of compliance with category 11 (RoHS compliance of electrical and electronic components) 	<p>Product development with green procurement (Reduce the use of RoHS directive chemicals)</p> <p>Initiatives aimed at complete elimination of RoHS directive chemicals</p> <ul style="list-style-type: none"> RoHS compliance rate in all new product types: 100% RoHS compliance in all products: 70%
		<p>Reduce the use of regulated chemicals</p> <p>"Appropriately control chemical substances, and reduce their use within the manufacturing process"</p> <p>(PRTR*4, VOC*5)</p>	<p>Initiatives towards reducing PRTR substances in paints</p> <ul style="list-style-type: none"> TX-free paints use spreading across the group (Toki, Fukushima) Reduction of solvent consumption (Fujinomiya, Toki)
Biodiversity	<p>Preserve and regenerate biodiversity to pass on this country, which is rich in the blessings of nature, in good shape to future generations.</p>	<p>Initiatives that contribute to biodiversity conservation</p> <p>"Maintenance and protection for richer biodiversity than current state by 2020"</p> <ul style="list-style-type: none"> Quantitative evaluation of each site Vitalizing linkage with local communities 	<ul style="list-style-type: none"> Implemented quantitative evaluation in line with JBIB's Ikimono Symbiosis Office guidelines Vitalizing linkage with local communities
Environmental management	<p>Respond faithfully to voices of stakeholders, particularly customers, to fulfill social responsibility as a company</p>	<p>Enhancing group environmental administration</p> <ul style="list-style-type: none"> ISO14001: 2015 group certification <p>Promoting CSR initiatives</p> <ul style="list-style-type: none"> Active fulfillment of accountability Enhancement of communication with stakeholders 	<p>Implemented CSR Communication</p> <ul style="list-style-type: none"> Issue the environmental and social report "Forest-In Office 2017" (Japanese, English and Chinese) Responded to CDP climate change survey Conducted environmental management survey responses

FY 2017 Results	Goals for FY 2018
<p>Reduction of CO2 through the release and sales promotion of eco-friendly products (Overall:-19.0%, sheet metal machine:-38.1%, stamping press:-16.7%, metal cutting / machine tool:-12.9%, grinding:-8.5%, achievement rate: 98.8%)</p>	<p>Reduction of CO2 through the release and sales promotion of eco-friendly products (Reduction rate: Overall:-21.6%, sheet metal machine: -39.6%, stamping press: -21.5%, metal cutting / machine tool: -13.8%, grinding:-11.7%)</p>
<ul style="list-style-type: none"> CO2 intensity 0.890 (-11.0% against the benchmark year) ※ Road map review after 2018 due to new establishments at Isehara Works (disaster prevention energy center etc.) and Toki Works (T876 Factory) Comply with the Revised Energy Conservation Law (reduce intensity by 1%/year) (Isehara Works / Fujinomiya Works / Toki Works / Ono Plant / Fukushima Plant) 	<ul style="list-style-type: none"> Reduce AMADA Group's CO2 by 14.7% from Benchmark year ※ Road map review after 2018 due to new establishments at Isehara Works (disaster prevention energy center etc.) and Toki Works (T876 factory) Continued compliance with the Revised Energy Conservation Act (1% reduction per year) (Isehara Works / Fujinomiya Works / Toki Works / Ono Plant / Fukushima Plant)
<ul style="list-style-type: none"> Maintaining of zero emission plants (Fujinomiya: 0.009%, Isehara ATP: 0.021%, Toki: 0.06%) AMADA Group's zero-emission ratio 1.101% Activities to reduce packaging materials for items such as parts for delivery, manufacturing material handling devices (Toki) Reducing landfill disposal by sludge recycling (Ono) Promoting package-less transport with traveling jigs, reducing packaging materials (Fukushima) Promoting waste plastic recycling (Fukushima) 	<ul style="list-style-type: none"> Maintained zero emission factories (Fujinomiya, Isehara ATP, Toki) Initiatives towards achieving zero emission plants (Ono, Miki, Noda, Fukushima) Zero emission rate in the AMADA Group's plants: 1.0% or less Continuous improvement of IN-OUT measures
<p>Product development with green procurement (Reduce the use of RoHS directive chemicals) Initiatives aimed at complete elimination of RoHS directive chemicals</p> <ul style="list-style-type: none"> RoHS compliance rate in all new product types: 99.7% RoHS compliance in all products: 73% 	<p>Product development with green procurement (Reduce the use of RoHS directive chemicals) Initiatives aimed at complete elimination of RoHS directive chemicals</p> <ul style="list-style-type: none"> RoHS compliance rate in all new product types: 100% RoHS compliance in all products: 70% and over
<ul style="list-style-type: none"> Verified environment-friendly special primers. Considering introduction next term (Fujinomiya) Promoting TX-free coating (Toki) Confirmed specified chemical substances by latest SDS acquisition (Ono) Changed parts cleaning thinner to PRTR substance-free (Miki) Promoting activities to increase ratio of powder coating and to reduce the ratio of solvent coating (Fukushima) 	<p>Initiatives towards reducing PRTR substances in paints</p> <ul style="list-style-type: none"> Continued activity to spread use of TX-free coating (Toki, Fukushima) Continued activity to reduce solvent consumption (Fujinomiya, Toki)
<ul style="list-style-type: none"> Implemented quantitative evaluation in line with JBIB's Ikimono Symbiosis Office guidelines (Fujinomiya) Pruning to nurture forests (Fujinomiya) Activities to cultivate endangered species for "tree cultivation and acorn forestation" (Toki) 	<ul style="list-style-type: none"> Implemented quantitative evaluation in line with JBIB's Ikimono Symbiosis Office guidelines (Fukushima) Vitalizing linkage with local communities
<p>Implemented CSR communication</p> <ul style="list-style-type: none"> Issue the environmental and social report "Forest-In Office 2017" (Japanese, English and Chinese) Responded to CDP climate change survey Conducted environmental management survey responses 	<p>Implemented CSR communication</p> <ul style="list-style-type: none"> Issue the environmental and social report "Forest-In Office 2018" (Japanese, English and Chinese) Publicized calculable value of SCOPE 3

*1: CO2 emissions data is calculated based on the calculation manual for the "Act on Promotion of Global Warming Countermeasures"

*2: Benchmark year: FY2007

*3: RoHS : Stands for "Restriction of Hazardous Substances." A directive that specifies hazardous substances contained in electrical equipment and electronics and prohibits their use.

*4 :PRTR : Stands for "Pollutant Release and Transfer Register," in which the emissions and movements of environmental pollutants are registered. A system for compiling and announcing the emission volumes and travel distances of hazardous chemicals.

*5 : VOC : Stands for volatile organic compounds.Regarded as a cause for chemical sensitivity syndrome and sick building syndrome.



Installed ENSIS-3015AJ with 3kW specification as Japan's first user

APC21 process control board KAIZEN showing progress information for each machine is installed at the front of the room for employees to share.

Aiming to be a company that our customers need Installed ENSIS-AJ with “Monozukuri Subsidy” using IoT

“Sheetmetal Machine and Soft” Issued in the December 2017, Machinist Publishing

ARAX Co., Ltd. started when Chairman Ken Arakawa remodeled his home garage in Kanonji City, Kagawa Prefecture to set up a temporary can-welding factory and, together with his wife, founded Arakawa Tekkōsho (Ironworks). They then went on to manufacture fish processing equipment and process non-ferrous metal.

In 1980, jointly with a fisheries processor, they succeeded in developing a “far-infrared double-sided grilling machine”. In 1989, the current can factory was built in Kunita-chō to where they relocated and incorporated as Arakawa Tekkōsho (Ironworks) Company Limited.

After graduating from high school, President Arakawa started working in sheet metal processing at a kitchen equipment manufacturing company in Osaka, and was called back by Chairman Arakawa in 1991 when he was 24 to join the company. However, when he returned, he found that the company had nothing that resembled proper facilities. "I was surprised at the lack of equipment at my own company because I was in charge of operating various AMADA sheet metal machines at the factory in Osaka," he recalls. That is when he persuaded the chairman to in a Corner Shear to begin with, and gradually expanded the facilities.

In 1996, they installed used punching and laser machines as well as an office computer in an effort to streamline business operations.

The name of the company was changed to ARAX Co., Ltd. in 1997. Evidently, they added the "X" to Arakawa to express the infinite potential of the company.



Makoto Arakawa, President

Company Profile

Company Name: ARAX Co., Ltd.
 President and CEO: Makoto Arakawa
 Address: 2396-1 Kunita-chō Otsu, Kanonji City, Kagawa Prefecture
 Phone: +81-(0)875-23-0530
 Established: 1989 (Founded 1973)
 No. of employees: 29
 Major business: Laser processing, laser cutting, precision sheet metal processing (turret punch processing, bending processing, various welding processing)
 URL <http://arax-laser.co.jp/>

Main equipment

●Fiber Laser Machine:ENSIS-3015AJ+LST-3015 ●Laser Machine: FO-M II RI3015+LST RI-3015 +1 more ●Punching Machine: COMA-557 ●Bending Machine: HG-2204, HFB-1703LD, RG-80/35S ●Shearing Machine: M-3045 ●Corner Shear: CSW-250 ●Automatic Material Shelf: AMS-951 ●3D Solid Sheet Metal CAD: Sheet Works ●2D CAD/CAM: AP100×3 ●Pipe Indexing Device: CAD/CAM: Dr. ABE Tube ●Production Management System: APC21 ●Process Control Board: KAIZEN

Installed ENSIS-AJ with “Monozukuri Subsidy”

The company had experience of being on the in-factory network from 1998 and in 2014 installed the production management system APC21. Furthermore, they had even come to centrally manage the order information and issue production instructions for about 300 special customers in order of delivery date, and gathered and managed machining progress and results.

In 2016 they used AMADA's process control board KAIZAN to connect multiple machines to the network environment. From there, they used collected information and data and aimed to realize one or more of 1) monitoring, 2) maintenance, 3) control, and 4) analysis, all of which are the requirements of IoT-based equipment investment. As for mechanical equipment, they first installed the bending machine HG-2204 in March 2017, and then with the monozukuri subsidy, the fiber laser machine ENSIS-3015AJ+3015G and KAIZEN, integrally.

Significant improvement in productivity

The company was the first user of the 3kW specification of the ENSIS-3015AJ instead of the conventional 2kW. The unique beam control technology enables control of the laser beam shape and full range support without lens replacement for a wide range of processing from high-speed and high-precision processing of thin plates to medium and thick plate

processing.

Furthermore, the ADSS (remote diagnostic system) provides stable operation support and the remote support allows optimum inspection and preventive/predictive maintenance. President Arakawa provided positive feedback, saying: “We only starting using it in June 2017, but productivity has greatly improved. Also, the ENSIS-AJ has a low running cost as far as electricity and gas are concerned and the use of electricity has not increased very much.” Regarding the operation status, he says: “The plate thickness to be processed is currently 0.5-19mm for steel plate and 0.5-12mm for stainless steel. Recently we are getting more orders for stainless steel. 95% are new and only about 5% are repeats. We have about 100 programs a day with four programmers in full operation.”

President Arakawa says that he will continue to follow this path of devotion. “When the deadline becomes a priority, we inevitably end up with more waste. Because of this, we use the scrap material nesting function. Because there are many requests for same day delivery, it is difficult to predict the future. However, I have no concerns. I believe that if we aim to become a company that our customers need if all employees make an effort, work will follow. I will continue to work on upgrading our equipment and developing human resources.”



Inside the laser factory. Front: ENSIS-3015AJ (3kW) Rear: FO-M II R13015



Square pipe laser processing using FO-M II R13015

[AMADA ECO PRODUCTS in use]



Fiber laser machine ENSIS-3015AJ

ENSIS-3015AJ

The ENSIS-AJ series incorporates AMADA's original fiber laser oscillator and our newest beam control technology, contributing to improving the efficiency of variable production while making the most of the energy saving effect.

- Feature 1: A single machine can cut thin to thick plates
- Feature 2: Improved efficiency through energy saving effect
- Feature 3: Pursued space saving with downsized, built-in oscillator
- Feature 4: Flexible layout

※The ENSIS-AJ series was highly regarded for its superior energy saving performance and was awarded the Agency for Natural Resources and Energy Director's Award at the 36th Energy-Efficient Machinery Awards.

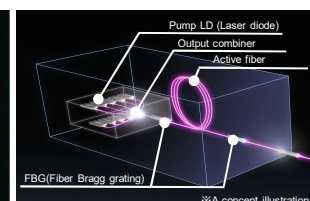
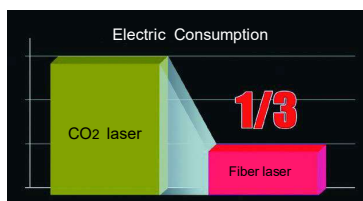
■ Low-cost processing through energy conservation and high speed cutting with AMADA's in-house built fiber laser oscillator

1: The fiber laser is simpler in construction and beam delivery than the CO₂ laser. This means that the maintenance cost of its oscillator and optical parts is much lower.

2: The fiber laser is capable of high energy conversion. It is three times higher in energy efficiency the CO₂ laser.

The power consumption is sharply cut.

No need for warm-up operation and laser gas has resulted in a running cost reduction of more than 70%.



Reducing CO₂ emissions associated with our products



AMADA Group supplies its customers with products including metalworking machines, consumables and software together with maintenance services. These products are industrial goods, which we provide with low CO₂ emissions, because we believe that reducing CO₂ emissions (reduction of power consumption) when using products is the most effective way to prevent global warming in the product life cycle.

Product environmental assessment system and AMADA ECO PRODUCTS certification system

The AMADA Group has put in place two systems for evaluating product environmental performance: the product environmental assessment system and the Amada ECO PRODUCTS certification system. Carried out as part of the design review (DR)* at each step of the development process, the product environmental assessment aims to ensure that we do not supply products with a severe environmental impact.

The assessment of product environmental performance consists of 25 assessment items in 8 categories, including energy consumption during customer use (CO₂ emissions) and non-usage of restricted chemical substances.

All new products in development undergo this assessment, and our rule is that, in principle, any product failing to meet the assessment criteria must not be marketed.

Like the product environmental assessment, the AMADA ECO PRODUCTS certification system is part of the Design Review and is intended to appeal to customers as an evaluation of our products' environmental performance (energy efficiency) and improved productivity.

Certified products are granted the AMADA ECO PRODUCTS mark.

ECO PRODUCTS Mark



Trademark #4631897

The green color symbolizes the protection of the environment, while the mark depicts a new leaf bud formed from the letters 'E' and 'P' (standing for 'eco products').



Resource-Saving Machine: Indicates a machine that saves natural resources by consuming less oil, gas etc. than conventional models.



Low-Noise Machine: Indicates a machine that produces less noise during use than conventional models.



Energy-Saving Machine: Indicates a machine that saves energy by consuming less power than conventional models.

Introducing AMADA ECO PRODUCTS

◆ HPSAW-310

The HPSAW-310 is an ultra-fast bandsaw machine created through the integrated development of machines and blades. Production efficiency is dramatically improved by shortening the cutting time. The new double-gate guide and bridge-type saw head frame are designed to achieve stable ultra-fast mild steel cutting. It is the fastest of its class and cuts mass amounts at an amazing speed. This bandsaw development goes beyond imagination.

The HPSAW-310 saved 46.1% more energy and had a 53.3% productivity improvement over our conventional machine, earning it the AMADA Eco Products certification.

第59回 日刊工業新聞
十大新製品賞 受賞
Awarded the 59th Nikkan Kogyo Shimbum
Top Ten New Product Award

日刊工業新聞社主催
第47回 機械工業デザイン賞
日本力(にっぽんぶらんど)賞 受賞
Awarded the Nikkan Kogyo Shimbum sponsored
47th Machine Design Award, Nippon Brand Prize



HPSAW-310

◆ EG-4010

The EG-4010 enables high-speed, high-precision bending of small pieces

A new ergonomics* machine with new servo drive equipped with the world's first drive system that employs a dual servo press (DSP), it realizes feed accuracy of 0.001mm with 2.2 times the productivity of conventional models. By promoting intelligence and comfort in processing, such as NC equipped with built-in CAM and ergonomic design, lead time is shortened and operation made easier, resulting in high energy-saving performance.

The EG-4010 saved 47.6% more energy and had an 11.2% productivity improvement over our conventional machine, earning it the AMADA Eco Products certification.



EG-4010

*1 Design Review (DR): A review of the design proposal created by the design department that all of the departments involved in the product evaluate from their own standpoint and give opinions and request improvements as needed, in order to develop products that satisfy our customers.

*2 Ergonomic Design: 1) Pendant positioning with minimal burden on the operator. 2) Designs that take into account pass lines that are easy to work on.

Reducing CO₂ emissions associated with our business activities



Achieving environmentally responsible workplaces (Initiatives in FY2017)

The main manufacturing facilities of the AMADA Group pursue efficiency in business and production processes, implementing energy and resource saving and making constant and drastic improvements to reduce the environmental impact of our factories.

Furthermore, we regard the use of renewable energy to be an important theme, and we incorporate it actively in the design of new operation sites and plants.

Toki Works (AMADA / AMADA MACHINE TOOLS)

Toki Works reduced CO₂ emissions from business activities through measures such as: 1) Reducing assembly man-hours through improvement activities (19 tons/ CO₂), 2) Reducing chiller power consumption in the laser assembly process, and 3) improving the efficiency of testing in software development. As a result, CO₂ emissions from business activities at Toki Works were reduced by 13% (2788ton-CO₂⇒2423ton-CO₂) over the previous year.



Water thermal storage system air conditioning chillers (Toki Works)

◆ 2017 Heat Pump and Thermal Storage System Efficient Use (Certificate of Appreciation)

Toki Works also installed a water storage system that uses the water stored in the heat storage tank for air conditioning, in an effort to steady and reduce power consumption. This system uses low-cost late-night electricity, stores cold water in the summer and hot water in the winter, and uses it for daytime air conditioning, in an attempt to reduce power consumption. This system was highly regarded and AMADA received a certificate of appreciation in July 2017 for the efficient use of heat pump and thermal storage at the 19th Heat Pump and Thermal Storage Conference.



The 19th Heat Pump and Thermal Storage Efficient Use (Certificate of Appreciation)

Fukushima Plant (AMADA AUTOMATION SYSTEMS)

At the Fukushima Plant, in order to meet customer needs (quick delivery, customized specifications, delivery month), the workload on conventional peripheral device production came in big waves, resulting in wasted materials, wasted energy, wasted man-hours, and excessive overtime work.

In consideration of customer needs, AMADA installed the Module MARS production system to level the production load and shorten lead-time (man-hour reduction, JIT production).

In fiscal 2017, we built a supply system in accordance with the module production system – the major issue of the previous year – and worked to improve the rate of operation of processing machines and coating equipment. As a result, productivity improved and we have been able to reduce electricity by approximately 20,000kWh and CO₂ emissions by 11.7 tons.



Module MARS Production System (Fukushima Plant)

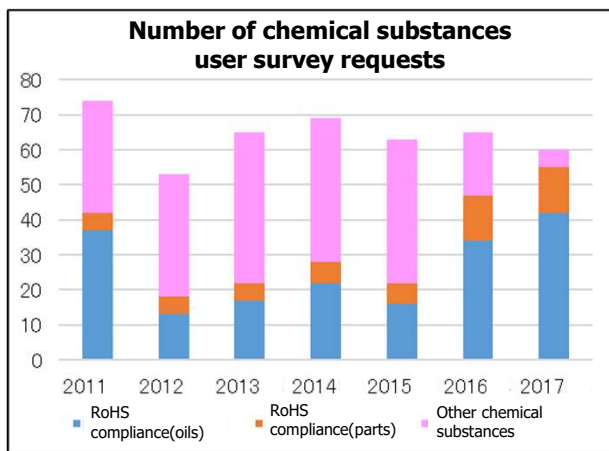
Regulated chemicals control

**We promote initiatives in controlling regulated chemical substances.
We are committed to providing safe machines made of safe materials.**

◆ Green Procurement

AMADA Group positions “green procurement,” procuring materials with small environmental loads, as one of its important environmental preservation activities for providing environmentally-friendly products to customers.

We request our suppliers for chemical substance analysis and information on materials being used in parts based on the “AMADA Group Green Procurement Guidelines”^{*1} that we established in April 2004.



◆ Chromate Treatments

With regard to surface treatment of in-house design mechanical parts, we have shifted from hexavalent chromium, which has a large environmental burden, to the more environmentally-friendly trivalent chromate.

◆ Lead-free solder circuit boards

A lead-free solder board for the electronic circuit board used in the control unit of AMADA machines has been developed and switching and mounting onto new products, completed.

◆ Oils

All oils marketed by the AMADA Group, including hydraulic fluid, lubricants and cutting oil, are RoHS compliant.

◆ RoHS Compliance

AMADA Group products are classified under the exclusion items LSSIT (large-scale stationary industrial tools) under RoHS II^{*4} command, but in order to ensure the safety of our customers, AMADA Group is preparing to comply with the Category 11 standards to be implemented on March 22, 2019.

◆ Safety management and control of chemical substance use in the manufacturing process

In addition to products supplied to customers, all of the AMADA Group’s manufacturing plants are working to reduce the amount of regulated chemical substances during the manufacturing process, based on the company-wide medium term plan.

FY2017 Results

• Miki Plant

A re-examination of the alternative to cleaning thinner (containing toluene) was conducted and the switch to toluene-free completed.

• Fukushima Plant

Under the supervision of the manufacturing department, education on the storage and handling of dangerous and poisonous materials, training on emergency treatment during waste oil discharge, and education by SDS on the handling of chemical substances were provided. For public awareness, safety managers and the manufacturing department are encouraged to conduct chemical substance risk assessments and have manufacturing department personnel publicize the results (hazard recognition by GHS label). The Fukushima Plant strives to prevent disasters and accidents caused by chemical substances, by improving employee skills and educating new employees through these activities.



Fukushima Plant

* 1 The AMADA Group Green Procurement Guidelines are revised according to amendments in the laws.

* 2 GHS: abbreviation for “Globally Harmonized System of Classification and Labeling of Chemicals”

* 3 SDS: A Material Safety Data Sheet (SDS) is a document mentioning the hazardous and harmful chemical substances of a product, and is delivered when the product is given or provided to another company.

* 4 RoHS II : Directive2011/65/EU

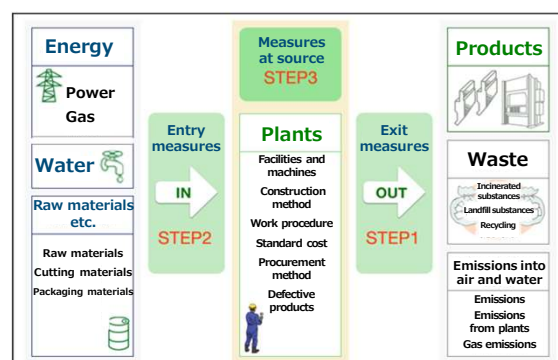
Effective use of resources

Efforts to effectively use resources in business activities

At the AMADA Group's manufacturing bases in Japan, we place importance on shifting to a sustainable society and are working to achieve and maintain zero emission factories. AMADA defines the achievement standard for zero emission factories as "the ratio (zero emission rate) of the final landfill waste to all waste must be less than 1% and the condition maintained for more than one year" and promotes initiatives in accordance with three steps.

◆ Zero-emission factories

Three of AMADA Group's manufacturing bases in Japan have achieved zero emission factories: Isehara Works (AMADA TOOL PRECISION), Fujinomiya Works, and Toki Works.



Toki Works (AMADA / AMADA MACHINE)

Toki Works is making efforts regarding the reduction of various packaging materials. In May 2010, with the cooperation of partners, Toki Works started using exclusive material handling tailored to the shape of the parts. The plan was to reduce 390kg of packaging materials by this conversion, but the results were a 509kg reduction. In fiscal 2017, the Works implemented pallet reduction measures by lending out wood pallets used in deliveries so that they could be reused. These pallets were changed from wood to resin, resulting in the total number of discarded pallets of nine, compared with 226 in fiscal 2016. 100% of all other packaging materials used for operations at Toki Works are considerate of the environment.



Switched from wood to exclusive material handling

	FY2015	FY2016	FY2017
Received	462	500	828
Delivered	202	430	986
Disposed	386	226	9

Trends in pallet disposal at Toki Works

Fukushima Plant (AMADA AUTOMATION SYSTEMS)

The coating booth at the Fukushima Plant uses a drying furnace fueled with LP gas, but in order to reduce the fuel needed to raise the drying furnace to high temperatures and to establish an internal production/supply system for coating, we started 24-hour operation as of December 2017. As a result, the crude oil conversion value of electricity plus gas to production value was 0.161[KL] in 2017 as opposed to 0.165[KL] in 2016, meaning a 2.5% reduction and resulting in reduced cost of outsourced coating and leveled production.



powder coating booth



solvent coating booth

Biodiversity

◆ Fujinomiya / AMADA's Forest

Approximately 60% of the Fujinomiya Works premises, or roughly 43 hectares is left as forest. About 80% of that is man-made cypress forest. It has already been 40 to 50 years since reforestation and AMADA is making positive improvements, proceeding systematically in order to transform it into a forest rich in animals and plants.



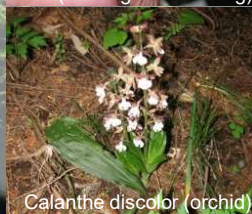
Creatures confirmed at Fujinomiya Works (in part)



Rhacophorus arboreus (forest green treefrog)



Euhadra quaesita (land snail)



Calanthe discolor (orchid)

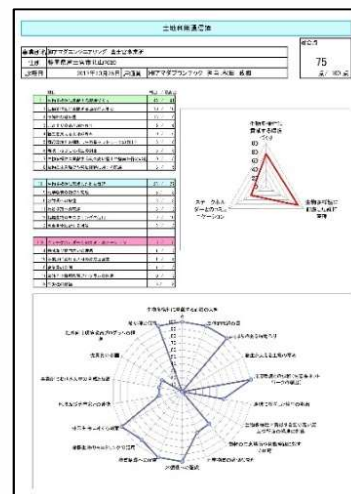


Ranatra (water scorpion)

◆ Quantitative Evaluation of Biodiversity

In order for AMADA Group's Japan offices to have a detailed understanding of the progress of biodiversity initiatives and clarify the type of good potential there is for the Works or where the causes of burdens lie, we aim to conduct quantitative evaluation and make systematic improvements.

The approach was evaluation using the tools promoted by the Office of the Symbiosis of Living Things from the Japan Business Initiative for Biodiversity. The aim is to further advance biodiversity initiatives by improving the evaluation score. In fiscal 2017, this initiative was implemented and evaluated at Fujinomiya Works (AMADA Plantech).



Fujinomiya Works biodiversity quantitative evaluation table

◆ Participation in removal activities for specific non-indigenous species (Noda Works)

Noda Works participates with the general public in the "Tone Canal bur cucumber removal" (organized by the Tone Canal Council) to remove bur cucumber, which is designated as a non-indigenous plant. Bur cucumber is a Cucurbitaceae plant native to North America and is designated as a "Specified Invasive Organism" whose cultivation is prohibited by law. In order to protect the precious creatures of the Tone Canal, Noda Works will continue to work with the region in an effort to eradicate specific non-native plants.



Tone Canal Aletili removal activity held in July 2017

Environmental accounting

AMADA Group has adopted environmental accounting to use for reasonable decision making by understanding the costs and benefits related to environmental preservation activities.

◆ The adoption of environmental accounting

AMADA Group has adopted environmental accounting since FY2005 for the purpose of understanding the costs and the economic impact associated with environmental preservation measures, and providing information useful for decision making by stakeholders.

The scope has gradually expanded and environmental accounting is now implemented at seven bases in Japan, including the Ono Plant (from 2008), Fujinomiya Works (from 2009), Toki Works (from 2011), Miki Plant (from 2013), and Fukushima Plant (from 2015).

To summarize the cost and economic impact (profit of actual results) associated with the environmental preservation measures, an “environmental accounting” item was added to the monthly accounting system for automatic calculation.

◆ Environmental preservation cost

R&D costs are calculated on the basis of the total cost, within the research and development theme, of developed product types that are newly certified as eco products in addition to models currently certified as eco products.

The main content is the cost of test material and jig production, and does not include expenses for experimental research or employee man-hours needed for development.

In terms of cost ratio, R&D costs are the highest, followed by global environmental conservation costs to promote global warming prevention and energy conservation, and pollution preventions costs to prevent air pollution and water pollution.

◆ Economic impact associated with environmental preservation measures

The main economic impacts for fiscal 2016 were business income, including income from recycling waste products of business activities, and capital investment.

The main sources of recycling income are metals such as iron, aluminum and stainless steel.

Environmental accounting Items		FY2013	FY2014	FY2015	FY2016	FY2017
Environmental Preservation cost	Cost	1,257,432	891,509	382,331	1,041,022	496,259
	Investment	1,233	36	53	33,827	15,526
	Total	1,258,665	891,545	382,385	1,074,849	511,785
Economic impact accompanying environmental preservation measures		32,640	26,485	17,581	20,969	28,180

Environmental accounting Items		Unit	FY2014	FY2015	FY2016	FY2017
The material effects related to the environmental conservation policy	CO ₂	Tons of CO ₂ per year	790.3	969.6	820.6	716.3
	Waste	Tons per year	16.0	18.9	46.0	39.5

Data

Material balance <Domestic>

INPUT

Resources/raw materials

Metal	27,315 t
Nonferrous metal	31.1 t
Oil	226.4 kL



Chemical substances (PRTR substance)

Gasoline	85.7 kL
Paint	42.4 t



Energy

Electricity	65,899,000 kWh
City gas	1,211,000m ³
Kerosene	926 kL
Others	253 kL



Water

Tap water	50,000 m ³
Underground water	103,000 m ³



Business Processes

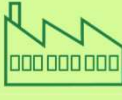
Plan/DEV/design



Procurement



Production



Transportation/delivery



Use



Disposal/Recycle



OUTPUT

Waste

Total waste	3,376 t
Recycled waste	3,151 t
Final Waste	28 t



Greenhouse gases

CO ₂	32,599 t -CO ₂
Nox emission	1.1 t
SOx emission	0.0 t



Impact on water environment

Total Waste	84,000m ³
BOD Waste	21.7 t



Chemical substances

Waste	67.3 t
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Gases emitted during transport

CO ₂	1,563 t
	(191,100,000 ton K*)

Recycling after product disposal

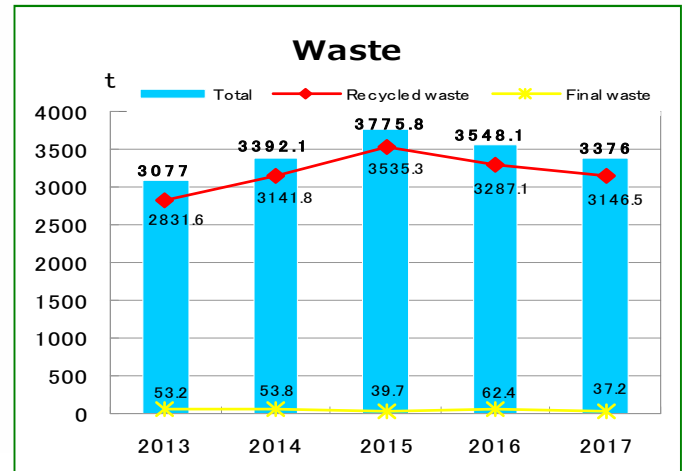
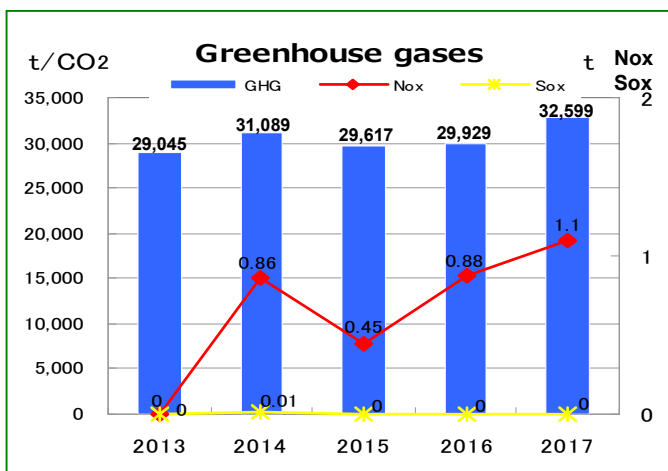
Metal	1,976 t
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Products



Scope: 7 domestic offices (Isehara / Fujinomiya / Toki / Ono / Miki / Noda / Fukushima)

* Calculated with METI's revised CO₂ calculation method ton/kilo Alternative method B.



<Detailed Data>

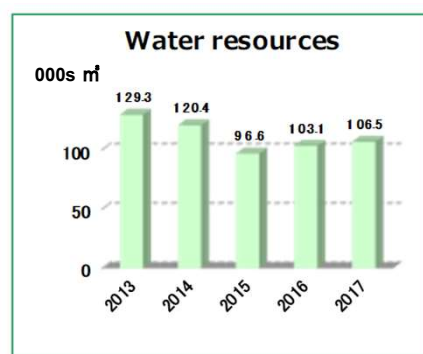
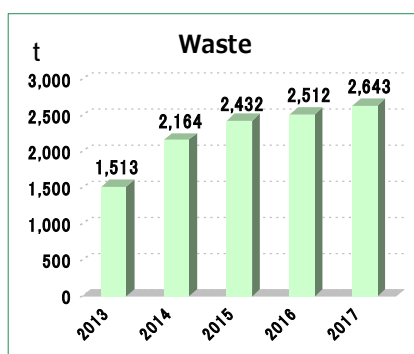
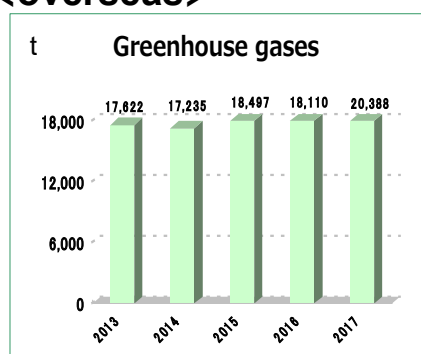
		2013	2014	2015	2016	2017	2018 (H1)
CO ₂ intensity	Isehara Works	0.0548	0.0547	0.0547	0.0562	0.0586	0.0618
	Fujinomiya Works	0.1740	0.1604	0.1512	0.1619	0.1503	0.1264
	Ono Plant	1.7907	1.6289	1.7168	0.9770	0.9844	0.9953
	Toki Works	0.3123	0.2660	0.2112	0.1940	0.1578	0.1421
	Noda Works	0.0560	0.0549	0.0537	0.0544	0.0490	0.0524
	Fukushima Plant	0.1362	0.1207	0.2820	0.2719	0.2876	0.2445
	Miki Plant	2.4596	2.3004	2.4292	2.356	2.363	2.4397

		2013	2014	2015	2016	2017	2018 (H1)
PRTR-reportable chemical substances in tons	Isehara Works	0.0049	0.0049	2.52	1.95	1.5	0.5
	Fujinomiya Works	44	52	52	52	43	18
	Ono Plant	0	0	0	0	0	0
	Toki Works	26	33	14	0	6.3	3.1
	Noda Works	0	0	0	0	0	0
	Fukushima Plant	10	17	14	14	16	12
	Miki Plant	0.2	0.3	0.3	0.4	0.4	0.1

		2013	2014	2015	2016	2017	2018 (H1)
Amount of water resources used in 000s m ³	Isehara Works	70	76	83	84	62	25
	Fujinomiya Works	77	65	64	64	64	33
	Ono Plant	8	7	8	8	9	4
	Toki Works	17	11	10	11	11	7
	Noda Works	2	6	4	4	4	2
	Fukushima Plant	0.4	1	2	3	3	1.3
	Miki Plant	1	1	1	1	1	0.4

		2013	2014	2015	2016	2017	2018 (H1)
Impact on the aquatic environment (waste) In 000s m ³	Isehara Works	44	44	50	49	49.3	25
	Fujinomiya Works	27	27	26	26	12.8	12.8
	Ono Plant	4	6	6	6	7.5	3.7
	Toki Works	7	8	5	5	7.3	4.6
	Noda Works	0	4	4	4	4	2.1
	Fukushima Plant	0.4	1	2	3	3	1.3
	Miki Plant	1	1	2	0.7	0.6	0.4

<overseas>



Scope of coverage : Greenhouse gases and water resources Overseas 43 companies

Waste Overseas Main production centers

Communication

Social contribution of AMADA Group



Opened technical center in Poland
AMADA Ap. z o. o. (Poland)

Europe



Technical Center Tour for Local High School Students
AMADA ITALIA SRL (Italy)



Received GAVA GROWTH award for regional
contribution
AMADA MAQUINARIA IBERICA (Turkey)



Held open factory
Fujinomiya Works (Japan)

With our customers

AMADA SCHOOL

The AMADA SCHOOL was established in 1978 as Japan's first vocational training corporation dedicated to metalworking machinery and education that takes advantage of the wealth of technology and cutting-edge facilities available. The school is built upon the two pillars of skills education (manufacturing) and support education (personnel development) and teaches students about machines, CAD/CAM operation, and the fundamentals of sheet metal processing. In addition, the school offers preparatory courses for the National Trade Skill Test (factory sheet metal work) theory and practical examinations. The school also provides courses with the goal of supporting human resource development for new employees, administrative staff, and supervisory staff at small- and medium-sized businesses and offers lectures on education courses, for managerial successors.



Subsidized JMC educational course for managerial successors (JMC)

Support for Sheet Metal Industry Associations

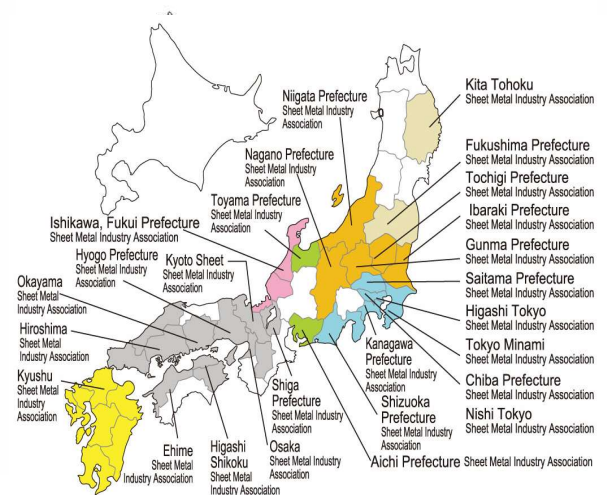
Sheet metal industry associations are groups of companies involved in the sheet metal processing industry established in each region of Japan by to promote the planning, proposal, implementation, and research of activities for the prosperity and global expansion of member companies. To date, 26 such industry associations have been established in Japan. To help improve the skills of all association member companies, train human resources, and promote industry development, AMADA provides assistance through the industry association secretanats and takes such measures as dispatching lecturers for workshops.



Seminars and various other events are held



Skill Examination



Asia

America



Renewed Isehara Headquarters Lounge Building
Added temporary stay functions in case of disasters (Japan)



Corporate tour for local high school students
AMADA TOOL AMERICA, INC. (US)



Co-sponsored Genesee Community College Tech Wars
AMADA TOOL AMERICA, INC. (US)

The Precision Sheet Metal Technology Fair

The Precision Sheet Metal Technology Fair is a competition established in 1989 by the AMADA SCHOOL to promote the improvement of sheet metal processing technology and skills. Currently, the school starts soliciting products from five categories in around May each year and, following judgment, holds an award ceremony the following March. The 30th Precision Sheet Metal Technology Fair awards ceremony was held in March 2018. 268 entries were submitted, of which 104 were submissions from overseas (a record number), with 26 submissions from students. In addition to the Minister of Labour, Health and Welfare Award, the Minister of Economy, Trade and Industry Award, the Japan Vocational Ability Development Association Chairman's Award, the Nikkan Kogyo Shimbun Award, the Judging Committee's Special Award, and the AMADA Award for outstanding products, gold, silver, and bronze awards were granted to submissions in the sheet metal parts, sheet metal assemble parts, welding fabrication, formative arts fabrication, and student's fabrication categories.



The 30th Precision Sheet Metal Technology Fair awards ceremony

The Main Award Winners



Winner of the Minister of Labour,
Health and Welfare Award



Winner of the Minister of Economy,
Trade and Industry Award

Communication

With our employees

AMADA Group's Human Resource Strategy

One of the AMADA Group management policies is to develop human resources who pursue creative and challenging activities; rather than being content with the present situation, we are constantly in search of new and better ideas to put into action in order to improve and enhance our business activities. This is the AMADA Group's basic philosophy of human resource development, and we believe that AMADA's unique corporate culture will be further developed by continuing to practice this philosophy. We are building a human resources strategy based on this philosophy. We build our human resource strategy based on this philosophy, the basis of which is for employees to grow by gaining extensive experience through OJT education and overseas rotations within the organization to which he or she belongs. In addition, we work to raise the morale and motivation of new employees toward the Company by implementing in-depth educational activities in a friendly manner. In this way, we support the active role of young employees from the early stages. Furthermore, in order to guide the organization in the right direction, it is essential to educate managers. We are also focusing on management education for that purpose.

In recent years, in order to cope with the shortage of human resources, we are actively promoting efforts to curb long working hours and improve productivity by practicing the strategy to shift from time to results by way of working reform, while at the same time focusing on the use of human resources from recruitment to training, retention, and labor management.

Developing global human resources

In order to actively recruit human resources in the global market, the AMADA Group firmly communicates that we are a global company at the recruiting stage and actively hire people with a wealth of skills and knowledge regardless of nationality.

From this fiscal year, we added Mt. Ōyama hiking and regional activation proposal training in Isehara City with a focus on "awareness of being a member of the local community" to the new employee training program. In addition to team building, the training teaches broad perspectives.



FY2018 new employee training (Mt. Ōyama hiking)

Woman's career support

Recognizing the lack of female managers and leaders as an issue, we are actively promoting and promoting female leaders who will lead the next generation. Currently, we are appointing women leaders in multiple workplaces, including the Design Center, which promotes the AMADA Group's brand strategy.

We are actively hiring female graduates from science and engineering schools, and promoting their positioning in the design and development fields.

There are also many female employees who are fluent in languages, making good use of their skills in presentations at domestic and international exhibitions as well as communication with foreigners.

Going forward, we will continue to maintain an environment where people can work around life events such as marriage and childbirth, thereby fostering a corporate culture to motivate female employees to play active roles without having to put out the extra effort.



Active appointment of female leaders

Promoting Support for Childcare

The AMADA Group is encouraging male employees to take child care leave by establishing an independent child care leave system, which differs from the original system by allowing employees who want to participate in childcare to redeem unused paid holidays that have expired. Moreover, in addition to encouraging employees to take planned grants of leave, we have established a separate holiday for parent observation day at school in addition to regular paid leave. We also provide support so that employees of childcare age can actively participate in raising their children, such as holding family tours at each of our Works.

▼ Number taking childcare leave

Scope: Japanese group companies

Gender	2015	2016	2017
Male	3	3	5
Female	13	14	12
Total	16	17	17

[Employee Interview] Azusa Shimizu, AMADA HOLDINGS Global Affiliates Division

My second child was born in November 2017, so I am currently using the parental leave system for my second time. I am so grateful to my colleagues in the department who watch over me with warmth and are as helpful as they were when I gave birth to my first child. AMADA also has a holiday for parent observation day at school, providing an environment that makes it easy to participate in our children's events. As you can return to the same department you were in when you left, there is less anxiety about balancing home and the workplace once you get back. I am getting ready to start working again and once I do, I plan to carefully review my work plan once more and push forward in cooperation with the people around me. The words of the person in charge of first hiring me, telling me to continue doing my best even after marriage and birth, continue to be my motivation.



A Workplace Where People with Disabilities Play a More Active Role

In June 2015, the AMADA Group launched a special subsidiary that employs people with disabilities. When the staff cafeteria was refurbished in December 2017, we put in a new area for paintings of greenery called "Pictorial Green" as an activity space for people with disabilities. Our entire staff will continue to expand opportunities and offer more employment to help people who have challenges so that they can be active and independent.



Green painting space, "Pictorial Green"

Safety Management

With regard to occupational health and safety in the AMADA Group, a General Safety and Health Committee is jointly formed with each company within the Works. A Safety Division, Health Division, Disaster Prevention Division, and Transportation Division are established as expert organizations and group companies, including sales offices are jointly organized to systematically solve problems across the group. In fiscal 2017, we proposed raising the level of health from three directions – For the dietary part, we held a low-sodium seminar with an industrial physician to prevent hypotension, suggesting that tasty food doesn't have to be salty. Stress checks for all employees are held for mental prevention and seminars proposing a better workplace are offered to managers.

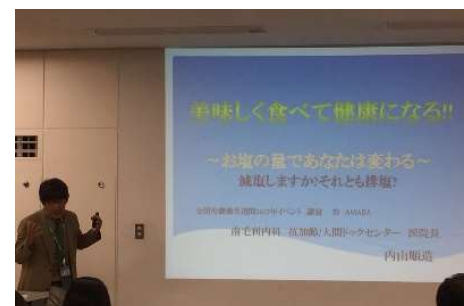


Traffic safety education for new service workers

Health Management

The AMADA Group has set up an industrial health and hygiene system and is focusing on mental health care as well as various types of physical health care in collaboration with the health insurance association. We aim to improve the health of the body and soul, so that every employee can enjoy working vibrantly.

In fiscal 2017, we proposed raising the level of health from three directions – exercise, diet, and sleep. As an example, a low-sodium lunch box seminar was held to prevent hypotension, suggesting that tasty food doesn't have to be salty. Stress checks for all employees are held for mental prevention and seminars proposing a better workplace are offered to managers.



Salt reduction seminar by an industrial physician

Communication

With our local community

Cleaning activities at each of our Works

At each of AMADA's Works across Japan, cleanup activities are held as part of our local cleanup efforts. In fiscal 2017, local cleanup activities were held at Isehara Works (Isehara City, Kanagawa Prefecture), Ono Plant (Ono City, Hyogo Prefecture), and Miki Plant (Miki City, Hyogo Prefecture). Cleanup activities are held every year at Fukushima Plant (Nihonmatsu City, Fukushima Prefecture), but the spread of the activities halved the amount of collected trash in 2017. Local cleanup activities will be continued as an opportunity for employees to consider the impact on the environmental load as well as social contribution.



Conducting a local cleanup activity (Fukushima Plant)

Environmental activities in cooperating with the community

Noda Works (Noda City, Chiba Prefecture) participated in fundraising activities of the Chiba Environment Revitalization Fund sponsored by the Chiba Environment Foundation. The fund is used as a grant for environmental activities to protect Chiba's nature. Noda Works also participated in the 9th Nichiban Makishin (tape core) Eco Project and cooperated with mangrove tree planting made possible by recycling the cores that tape is wound around. Fujinomiya Works (Fujinomiya City, Shizuoka Prefecture) holds a Tanuki Lake Walk, combining health promotion and regional beautification every year. With plastic bags and trash tongs in hand, about 140 employees and family members participated this year, which marked the 19th lake walk, cleaning the path they followed.



Tanuki Lake Walk (Fujinomiya Works)

Co-sponsored local sports competitions

The AMADA Group actively co-sponsors local sports competitions. In addition to the Oyama Hiking Marathon held annually in Isehara City, Kanagawa Prefecture where the AMADA HOLDINGS headquarters are located, we have co-sponsored the Yokohama Marathon every year since it began in 2015. Many of our employees support the tournament by participating as operational volunteers.



Oyama hiking marathon

Co-sponsored and held local events

In April every year, The AMADA Group also holds a community exchange event called "Hanami-cation" at the Ono Plant (Ono City, Hyogo Prefecture). The exchange event of 2017 was the ninth "Hanami-cation" sponsored by the AMADA Group.

Additionally, The AMADA Group co-sponsors the Isehara Tourism Dōkan Festival which is held every October in Isehara City (Kanagawa Pref.), the Ōiso Nagisa Festival (Ōiso-chō Kanagawa Pref.) and the National Tree-planting Festival (Sōma City, Fukushima Prefecture), among others.



The 9th annual Hanami-cation (Ono Plant)

Factory tour

The Fujinomiya Works (Fujinomiya City, Shizuoka Prefecture) cooperated with the "Summer vacation environment expedition for parents and kids" sponsored by Fujinomiya City and held a plant tour. The theme of this tour was, "Tour of a plant that cares about air pollution prevention." The tour that targeted mainly lower elementary grade students introduced the environmental activities of Fujinomiya Works and showed the actual processes of a coating booth, in-factory machine processing, and laser factory.



"Summer vacation environment expedition for parents and kids" factory tour

ISO26000 Comparative Table

In this report, a comparative table was created to confirm that activities and information disclosure were conducted in accordance with the core subjects of ISO 26000 (Guide to Social Responsibility), an international standard issued in November 2010.

Core ISO26000 subjects	Issues	Published in this report	Publication page
Organizational Governance	Organizational Governance	<ul style="list-style-type: none"> Top Message Corporate Governance 	03 08
Human Rights	<ol style="list-style-type: none"> Due diligence Crisis regarding human rights Avoidance of complicity Compliant resolution Discrimination and the socially vulnerable Civil and political rights Economic, social, and cultural rights Basic principles and rights at work 	<ul style="list-style-type: none"> With our employees With our local community 	31-32 33
Labor Practices	<ol style="list-style-type: none"> Employment and employment relationship Working conditions and social protection Social dialogue Health and safety at work Human resource development and training in the workplace 	<ul style="list-style-type: none"> With our employees 	31-32
The Environment	<ol style="list-style-type: none"> Prevention of pollution Use of sustainable resources Climate change mitigation and adaptation Environmental protection, biodiversity, and restoration of natural habitats 	<ul style="list-style-type: none"> Special Feature No. 1: New facility becomes core of BCP, etc. Special Feature No. 2: About Our Product EG-4010 Reducing CO₂ emissions associated with our products Reducing CO₂ emissions associated with our business activities Regulated chemicals control Effective use of resources Biodiversity Environmental accounting Data Material balance 	11-12 13-14 21 22 23 24 25 26 27-28
Fair Operating Practices	<ol style="list-style-type: none"> Prevention of corruption Responsible political involvement Fair competition Promotion of social responsibility in the value chain Respect for property rights 	<ul style="list-style-type: none"> AMADA Group Environmental Declaration and Policy, Our Management Philosophy Corporate Governance 	02 08
Consumer Issues	<ol style="list-style-type: none"> Fair marketing Protection of consumers' health and safety Sustainable consumption Consumer service and support / resolution of complaints and disputes Consumer data protection and privacy Access to essential services Education and raising awareness 	<ul style="list-style-type: none"> Special Feature No. 3: Initiatives on the support of the metal processing industry Reducing CO₂ emissions associated with our products Social contribution of AMADA Group 	15 21 29-30
Community Involvement and Development	<ol style="list-style-type: none"> Participation in the community Education and culture Job creation and income creation Technology development and access to technology Creation of wealth and income Health Social investment 	<ul style="list-style-type: none"> Special Feature No. 3: SDGs Initiatives Social contribution of AMADA Group With our employees With our local community 	15 27-28 29-30 31

SDGs Response Chart

Content	Page	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
AMADA Group Environmental Declaration and Policy, Our Management Philosophy	02																		
Top Message / SDGs Initiatives	03 -04																		●
Businesses of AMADA Group (Sheet metal fabrication business / Stamping press business, etc.)	05 -06																		
Business Outline (Trends in performance, employee data, etc.)	07																		
Corporate Governance	08																		
Our Works	09 -10																		
Special Feature No. 1: New facility becomes core of BCP / The new tooling factory at Toki Works	11 -12						●	●		●				●					
Special Feature No. 2: About AMADA Eco Product EG-4010	13 -14							●		●			●						
Special Feature No. 3: Initiatives on the support of the metal processing industry	15 -16				●				●	●									
Mid-term environmental plan	17 -18																		
Introducing AMADA ECO PRODUCTS	19 -20							●		●			●						
Reducing CO ₂ emissions associated with our products	21							●		●			●	●					
Reducing CO ₂ emissions associated with our business activities	22							●		●			●	●					
Regulated chemicals control	23			●									●	●					
Effective use of resources	24												●	●					
Biodiversity	25																	●	
Environmental accounting	26													●					
Data Material balance	27 -28												●						
Communication • Social contribution of AMADA Group • With our customers	29 -33				●					●									●
• With our employees	31 -32			●		●			●		●								
• With our local community	33											●						●	

Independent Assurance Statement

In order to enhance the reliability of the environmental data given in our report, we have obtained assurance by a third-party organization.

The target data and assurance standards for this certification are as follows:

- The CO₂ emissions from our 7 domestic business facilities
International Standards on Assurance Engagements: ISAE 3000 and ISAE 3410
- * The target of this assurance statement is the data of greenhouse gas emissions on page 27.



Independent Assurance Statement

December 27, 2018

Mr. Tsutomu Isobe
President
AMADA HOLDINGS CO., LTD.

1. Purpose

We, Sustainability Accounting Co., Ltd., have been engaged by AMADA HOLDINGS CO., LTD. ("the Company") to provide limited assurance on the Company's CO₂ emissions which are 32,599 tons-CO₂ ("the CO₂ emissions data") from 7 domestic business facilities (Isehara / Fujinomiya / Toki / Ono / Miki / Noda / Fukushima) during the fiscal year 2017. The purpose of this process is to express our conclusion on whether the CO₂ emissions data were calculated in accordance with the Company's standards. The Company's management is responsible for calculating the CO₂ emissions data. Our responsibility is to independently carry out a limited assurance engagement and to express our assurance conclusion.

2. Procedures Performed

We conducted our assurance engagement in accordance with International Standard on Assurance Engagement 3000 (ISAE 3000) and International Standard on Assurance Engagement 3410 (ISAE 3410). The key procedures we carried out included:

- Interviewing the Company's responsible personnel to understand the Company's standards and reviewing the Company's standards
- Visiting to one of the Company's sites
- Performing cross-checks on a sample basis and performing a recalculation to determine whether the CO₂ emissions data were calculated in accordance with the Company's standards.

3. Conclusion

Based on the procedures performed, nothing has come to our attention that causes us to believe that the CO₂ emissions data have not been calculated in all material respects in accordance with the Company's standards.

We have no conflict of interest relationships with the Company.

A handwritten signature in black ink, appearing to read "Takashi Fukushima", is written over a horizontal line.

Takashi Fukushima
Representative Director
Sustainability Accounting Co., Ltd.

Third party opinion



AMITA CORPORATION
Senior Consultant
Yōichi Inomata

Graduated 1994 from Faculty of Science and Engineering, Waseda University and joined Benesse Corporation the same year. Went on to successfully launch new businesses including a foreign internet venture and recruiting agency, then started at his current position in 2009. Specializes in strategy and implementation, communication, and education in areas of environment and CSR. Produced websites including the Ministry of the Environment's Ryuyo Sanpai Navi ("Superior industrial waste navigation"), Corporate Web Grand prix winning site Oshiete! Amita-san ("Tell us, Amita!"), and CSR JAPAN. Served on external committees including the Eco Certification examination committee for the Tokyo Chamber of Commerce and Industry. Written publications include Introduction to SCR Digital Communication (co-authored), CSR no Hikari to Kage ("The Light and Shadow of CSR"), a series in Kankyo Shimbun, and third-party opinions to corporations.

This is the third year for me to provide a third-party opinion for Amada Holdings. Last year, I offered the following points as my recommendation: (1) promote company-wide awareness of ISO26000, establish top priority issues (materiality), and formulate mid-to-long-term CSR plans, and (2) the need to work on a sustainability strategy with SDGs in mind. I would like to start by reviewing, through this year's report, how the company has evolved over the last year in response to my recommendations.

Last year, you posted an ISO26000 comparative table and an SDGs response chart as a step towards "efforts related to social issues suited to AMADA's global business development," and "a report that is conscious of international standards," and I saw these as great strides. I read through this year's report with that in mind, and feel that these aspects are being integrated, albeit gradually, into the company's management. In the Top Message, Chairman and CEO Mitsuo Okamoto states that, in his view, advancing business while focusing on the SDGs is a chance for growth. Furthermore, he explained that under AMADA's five-year mid-term plan "TASK 3-2-1" that began in FY2016, the company is already engaging in low-carbon technology development and carrying out "business strategies" and "local strategies" aimed at sustainability (P3-4). Through his message, I observed the management's earnest intention to do its part toward the achievement of international goals by positioning the need to resolve social issues as one of its most important tasks. In particular, I was able to understand how "global warming prevention," "effective use of resources," "chemicals control," and "biodiversity," which are AMADA Group's key environmental goals, tie in with its SDGs (chart on P4). I expect that the establishment of top priority issues (materiality), which I had identified the need for last year, is on the way to being accomplished.

Moreover, in addition to the efforts made on SDGs, the report also sheds a spotlight on the Junior Management College (JMC) (P15-16) as part of AMADA Group's CSR efforts. While SDGs is a topic that has been receiving greater attention in recent years, I learned that AMADA has been working on its SDG 9 "Create a foundation for industrial and technological innovation" since 1979. Around 1,000 students have already completed the JMC courses. It is heartening to learn that the company is contributing to the industry's advancement by supporting the training of management personnel for the sheet metal industry. Japan is seeing a decrease in younger individuals going into manufacturing (*monozukuri*) due to decline in population. It is my great hope that AMADA will continue to run the JMC and successfully pass on the business to the coming generations.

While succession of business through individuals is important, it is also imperative that the business is continued in emergency situations. Last year, Japan experienced many major natural disasters such as earthquakes and typhoons. It is important that we stay prepared to respond when such disasters hit with regards to indispensable matters such as electricity, drinking water, and heat. I understand that in September 2017, AMADA completed a disaster energy center (P11-12), which can be used as an evacuation shelter for employees and local residents. I believe it to be a commendable endeavor that the company is not only making efforts to ensure the succession of its business, but is also contributing to the sustainability of its local community. It is, after all, very important that a company sees itself as a citizen of the local community and advances its business while working to promote prosperity for the entire neighborhood.

As observed thus far, AMADA has been digging deeper into its SDGs over the past year. In order to gain even greater trust from its stakeholders and enhance its value as a company, I would like to offer three points of advice.

First, in this day in age when corporations are judged based on the ESG (environment, society, governance) standard which evaluates efforts made regarding environmental and social issues, it is regrettable that AMADA's current report appears as if it only addresses environmental issues. Driven in part by the many corporate scandals that have been coming to light in recent years, the ESG standard is being used more and more as an important way to gauge whether or not a company is sustainable. AMADA has already been making efforts in promoting sustainable business, centering on CSR and SDGs, which includes social issues. In western countries, an increasing number of companies are disclosing information related to non-financial matters. Because AMADA is a company that engages in overseas businesses, I believe it is time that its efforts are disclosed in its CSR and organizational governance reports. While this report helped me understand the connections between AMADA's business with ISO26000 and SDGs, it does not make clear how the company establishes its goals for CSR and SDGs, and how organizational efforts are made toward achieving them. In order to make this happen, it is of utmost importance that new departments for CSR and ESG are established and, as I stated last year, a system for reviewing CSR is set up. I propose that the first things to do would be to take incremental steps to establish top priority issues (materiality) and formulate a mid-term CSR plan that takes into consideration the influences of your company and stakeholders that involve not only in-house dissemination of ISO 26000 and environmental issues, but also social issues. It will take time, but from a mid-to-long-term perspective, this will definitely enhance your corporate value.

Regarding the second point, as last summer's abnormal weather conditions indicated, measures to deal with environmental issues is a matter of great urgency. Influenced in part by the Paris Agreement adopted in 2015, the world is paying closer attention to corporations' environmental activities. Today, we see many companies proactively disclosing their environmental efforts, such as a food service company declaring a self-imposed ban on plastic. It is a likely indication of this trend that an increasing number of companies are participating in initiatives to disclose their response to climate change issues through projects like CDP, SBT, and RE100, to promote renewable energy, and to reduce CO₂.

AMADA has been putting forth ample efforts into dealing with the CO₂ issues, and it would be feasible to disclose more specific details about them. As you are already reducing CO₂ emissions of products (P21) and of business activities (P22), why not, for example, proactively participate in international initiatives? Influenced by the popularity of ESG investment, companies in Japan that are actively tackling environmental and social issues are seeing more offers for investments and financing coming their way. As a leading participant in the global business arena, I urge you to actively take part in such initiatives.

The third recommendation is to become even more aggressive in taking a major step toward sustainability management. While many companies today are showing greater drive to work toward SDGs, there are still very few which are successfully incorporating such goals into their business managements. I would like to see AMADA adopt an "outside-in" approach and show what social and environmental issues your company sees as important and how you plan to resolve these issues using your strengths. As a way to organize this, why not establish a long-term vision through 2050 and back-cast from it, thereby looking at your company's business framework from a fresh perspective. Going forward, we will face an even greater variety of environmental restrictions. There is a chance that, due to these restrictions, you will not be able to continue carrying out the existing businesses, but that may conversely turn out to serve as business opportunities. Using the issues as turning points, I am sure you would be able to reorganize the company's business and products. Doing these things will contribute to building a sustainable society and to developing into a sustainable corporation. I look forward to reading AMADA's report again next year.



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