Forest-In Office

Amada Green Action

AMADA

Table of Contents

■Editing Policy

This booklet is comprised of the environmental activities of Amada and the Amada Group companies in Japan, and is edited based on the "Environmental Accounting Guidelines 2007" by the Ministry of Environment.
This report is targeted toward various stakeholders, and it is edited so that the readers can understand Amada's environmental activities and social contributions with just this booklet alone.

■Reference

"Environmental Accounting Guidelines 2007" by the Ministry of Environment

■ISO 14001 certification

AMADA	Isehara Works	Dec 1998
	Fujinomiya Works	Sep 2002
	Ono Plant	Dec 2008
AMADA MACHINE TOOLS CO., LTD.		Oct 1999

■Issues

2012 edition Published Sept. 2012
2013 edition Due to be published Sept. 2013
2011 edition Published Sept. 2011

■About the name "Forest-In Office"

"Forest-in" is a term made by Amada.
It does not mean an office inside a forest, but rather, it expresses that Amada would like to become like the forest itself. The term thus refers to Amada as "an office of the forest" that promotes activities that protects the natural environment.

■ Area of coverage

Dates: April 2011 to March 2012
Organizations:

AMADA CO., LTD

Isehara Works	200 Ishida, Isehara-shi, Kanagawa
Fujinomiya Works	7020 Kitayama, Fujinomiya-shi, Shizuoka
Ono Plant	56 Hata-cho, Ono City, Hyogo

AMADA MACHINE TOOLS CO., LTD.

Headquarters	200 Ishida, Isehara-shi, Kanagawa
Toki Works	1431-37 Kitayama, Kujiri, Izumi-cho, Toki-shi, Gifu

AMADA TOOL PRECISION CO., LTD.
200 Ishida, Isehara-shi, Kanagawa

AMADA ENGINEERING CO., LTD.

Headquarters	200 Ishida, Isehara-shi, Kanagawa
Fukushima Plant	81-3 Minami Shimohara, Matsukawa-cho, Fukushima City, Fukushima

NICOTEC CO., LTD.

Headquarters	200 Ishida, Isehara-shi, Kanagawa
Miki Plant	45 Tomoe, Bessho-cho, Miki -shi, Hyogo
Urawa Works	9-20-1 Tajima, Sakura-ku, Saitama-shi, Saitama

AMADA TOYO CO., LTD.
3-73 Sameganji, Yatomi-shi, Aichi

◆ Our Management Philosophy

1.Grow 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 the "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 resources 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.

◆ Amada Group 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 being. Based on this idea, Amada Group positions environmental preservation as one of the important management issues, and is committed to contributing to a prosperous future of the people around the world through ecological manufacturing, 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 eliminate hazardous substances, and contribute to environmental preservation and 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 improvement, 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 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 interested parties.

5.Continuous improvement of environment management system

Build environment management system and make continuous improvement of it. Grasp effects of business activities, products and services on 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 sense of responsibility as a member of company and also boost awareness of environment preservation.

Established in April, 2010

Mitsuo Okamoto

President of Amada Co., Ltd.

Foreword

Message from the President and CEO

The Amada Group comprises four business segments: sheet metal machines, press machines, cutting machines, and machine tools. We are, moreover, a comprehensive manufacturer of metalworking machinery which possesses the peripheral processing, software, dies and services that are needed in the operation of those machines. In order to strengthen our cutting and machine tool division, in October last year we opened the new Toki Works in Toki City, Gifu Prefecture, which is responsible for the development, manufacture and sales of cutting and machine tools, as well as related services. It's a major base comprising a new plant, the construction of which drew extensively on past experience, and a Technical Center (TC), which carries out the latest approaches in processing. The TC building makes maximum use of natural energy and is zero carbon rated (ie CO_2 emissions from the building are zero), while the plant building is the first completely electrified plant in the Chubu area. I have high hopes for the new products that will be created at the Toki Works in the months and years to come.

Since Amada Group's products are industrial goods, used by our customers over a long period, in terms of CO_2 emissions during their lifecycle the volume of emissions released during the stage of customer use is significantly greater than other life stages. The development of machines that save energy when used is therefore of crucial importance, from the point of view of preventing global warming. In addition to achieving significant energy savings when compared to conventional laser machines, the FOL-3015AJ fiber laser cutting machine, which we started selling last year, offers improved machining performance with high reflective and difficult-to-cut materials, as well as high speed machining and low running costs with ordinary materials such as iron and stainless steel. In addition, compared to conventional punch & laser combination machines, the integrated blanking process integrated solution ACIES Series not only achieves major energy savings, but also offers abrasion (secondary wear)-free high speed and high grade machining of die processing products, as well as punching and laser-beam auto-allocation appropriate to customers' quality criteria.

The slogan of Amada Group's environmental activities is "Linkage through Eco-conscious Manufacturing." This is the idea of creating green products at the Group's environmentally-friendly offices and plants – products which are then used by our customers, meaning that we support them in their eco-friendly product creation. Furthermore, we provide our customers with the eco-related know-how that we have acquired, and in so doing we strive to make a contribution to the creation of green environments at our customers' plants. With this idea of Linkage through Eco-conscious Manufacturing in mind, by responding to the expectations of all stakeholders, including our customers, the Amada Group fully intends to fulfill its corporate social responsibilities.

September 2012

Topics 2011-12

2011

Apr.

- Amada Machine Tools and Amada Machine Tools MFG merge,leading to the creation of the new Amada Machine Tools
- Amada Tool Technica becomes Amada Tool Precision, with responsibility for the development, manufacture and sales of tools


DIGITAL INNOVATION EXPO MAY 2011

May

- DIGITAL INNOVATION EXPO MAY 2011
  The ACIES Series process integration machine, and the FLW-4000M3 fiber laser welding machine are unveiled at the Expo

Jun.


ACIES Series

Jul.


FLW-400M3

Aug.

- The FOL-3015AJ fiber laser cutting machine is displayed at MF-Tokyo


FOL-3015AJ

Sep.


Kansai Technical Center

Oct.

- The Kansai Technical Center opens
- The Gunma Satellite Center opens
- Flood damage in Thailand; emergency HQ set up


Toki Works /
Toki technical Center

Nov.

- The Toki Works/Toki Technical Center open

Dec.

- The AMADA INNOVATION FAIR in CHINA is held in Shanghai
  Sheet metal, press, cutting and machine tools are displayed
- The Kyushu Satellite Center opens


AMADA INNOVATION FAIR in CHINA

2012

Jan.

- The FOL-3015AJ fiber laser cutting machine wins The Masuda Award of Nikkan Kogyo Shimbun's the Best 10 New Products Prize

Feb.

- A regional sheet metal and press exhibition entitled "INNOVATION FAIR in Toki" is held in Toki


INNOVATION FAIR in Toki

Mar.

About Amada

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

This is Amada

The Amada Group consists of approximately 80 subsidiaries and affiliated companies, and its main business is the manufacturing, sale, leasing, repair, maintenance, inspection, and testing of metalworking machines and equipment.

It handles metalworking machines mainly for the four business segments of sheet metal machines, presses, cutting /structural steel machines, and process machinery. It also provides total solution services including software for controlling machines, peripheral equipment, tools, and maintenance.

Amada contributes to the development of manufacturing by continuously exploring what our customers need from their perspectives, as a comprehensive manufacturer of metalworking machinery. Let us introduce our business facilities.

◆ Isehara Works

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.

Isehara Works

◆ Fujinomiya Works

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* 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.

◆ Ono Plant

Ono Plant is located in Ono City, Hyogo 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.

It has affiliated factories in Austria and China, and the three factories in Japan, Europe and China work together to incorporate the needs of global customers and the latest technologies.

Also, by utilizing our unique technology, the "QCD" + "Innovation" is upgraded daily, maintaining the number 1 spot in the global market share of band saw blades.

Fujinomiya Works

Ono Plant

Front 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.

◆ Amada Machine Tools Co., LTD.

Amada Machine Tools is responsible for the development, manufacture and sales of metal cutting machines, machine tools (lathes, grinding 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.

◆ Amada Tool Precision Co., LTD.

Amada Tool Precision deals with the manufacture and sales of tools, and die peripheral processing devices, which are expendable parts of Amada's punching and bending machines.

The company has three separate manufacturing plants. One is the seamless and automated "876 Plant" that covers processes ranging from the procurement of raw materials, rough processing, and heat treatment, to grinding processing. Second is the "Resizing Plant" that accommodates quick-delivery orders, and third is the "Special Tooling Plant" that manufactures made-to-order special tools.

◆ Amada Engineering Co., LTD.

Since it began operations, Amada Engineering 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.

◆ Nicotec Co., LTD.

Nicotec 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 Hyogo and Saitama Prefecture.

The Miki Plant, in Hyogo Prefecture, is responsible for the development and manufacture of bandsaw blades, hole saws, coils and so forth. The Urawa Works in Saitama Prefecture, meanwhile, comprises an Oil Center, a Service Center, and the Tokyo Sales Office, and the Oil Center is very active as a manufacturing and distribution hub, handling all the cutting and machine oil from across the Amada Group.

◆ Amada Toyo Co., LTD.

Since it began operating as the Toyokoki Co. Ltd. in 1956, Amada Toyo is responsible for the development, manufacture and sales of bending machines.

It became part of the Amada Group in 2009 and sells sheet metal general-purpose machines, as well as producing compact bending machines for developing countries.


Amada Tool Precision / 876 Plant


Nicotec / Miki Plant


Nicotec / Urawa Works


Amada Engineering / Fukushima Plant


Amada Toyo

◆ Technical Centers and Satellite Centers open in Japan and overseas

The Amada Group has been steadily expanding its network of Technical Centers and Satellite Centers, both in Japan and overseas, to provide community-based services and to serve as a base for solving current sheet metal working challenges alongside our customers.

Two Satellite Centers were opened in Japan in 2011 – one in Gunma in October, with a second opening in Kyushu in December.

Overseas, meanwhile, Technical Centers were opened in India and Thailand, in February and May 2011 respectively. In October, a facility opened in Singapore which was the result of a collaboration with the National Technical Training College there.

Amada is expanding its network of sales hubs that are rooted in the community and which make it easy for local customers to drop in.

Gunma Satellite Center

Kansai Technical Center

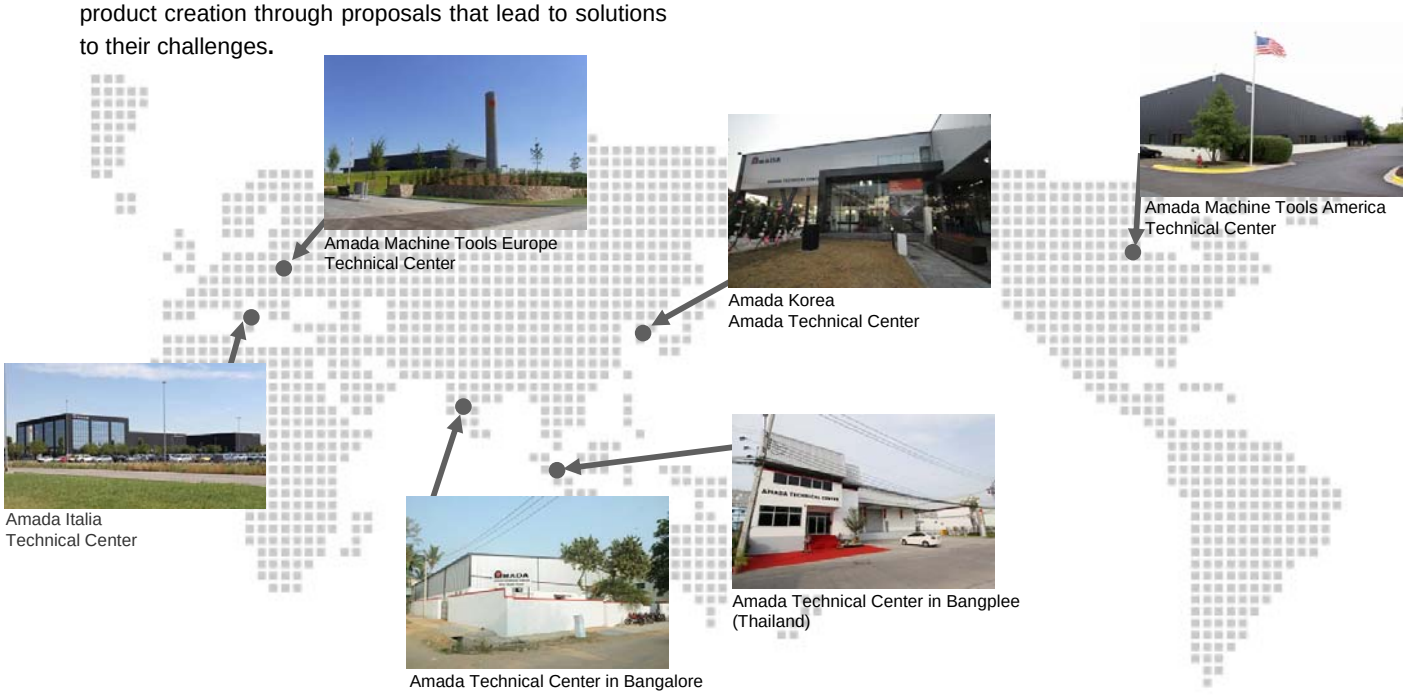
Kyushu Satellite Center

In fiscal 2011, three new domestic hubs were opened

◆ Kansai Technical Center

Serving as a hub to provide the most up-to-date engineering expertise to our customers in the west of Japan, construction work was completed on the Kansai Technical Center in July 2011, with the Grand Opening taking place in October the same year.

The city of Higashi-Osaka, where the Kansai Technical Center is located, is a hub for small and medium-sized enterprise manufacturing, performing the same role as Ota Ward in Tokyo. Taking advantage of the area's characteristics, and acting as a core technology hub of the West Japan region, we are contributing to our customers' technological improvements and high quality product creation through proposals that lead to solutions to their challenges.


Amada Machine Tools Europe Technical Center

Amada Korea Amada Technical Center

Amada Machine Tools America Technical Center

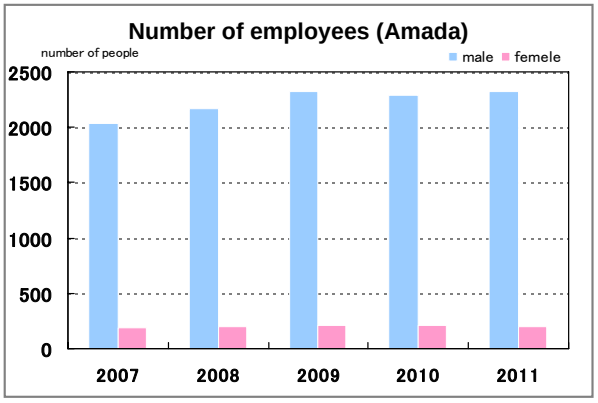
Amada Italia Technical Center

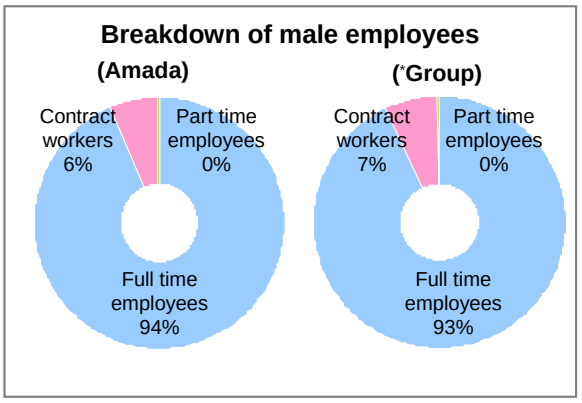
Amada Technical Center in Bangplee (Thailand)

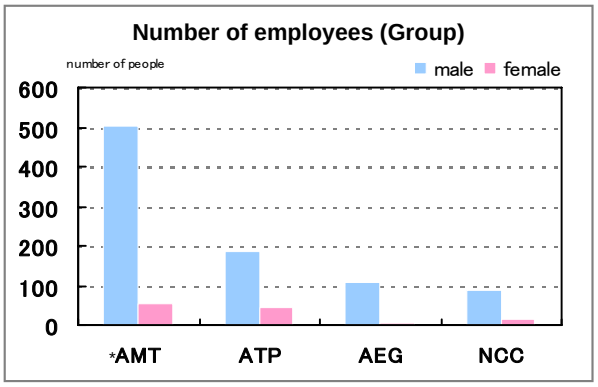
Amada Technical Center in Bangalore

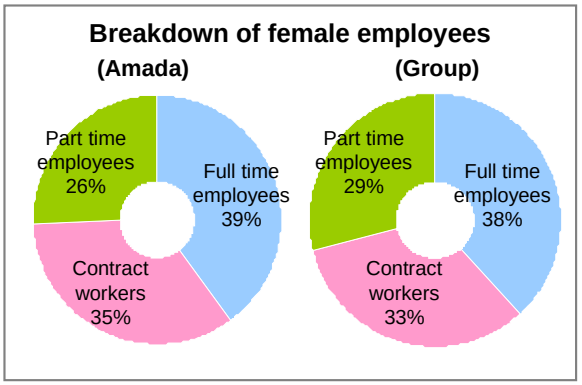
Overseas hubs: Between fiscal 2010 and 2011, Technical Centers opened in 6 countries

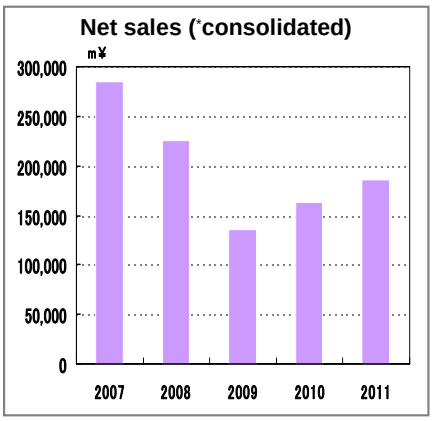
◆ Outline of Amada (as of end March 2012)

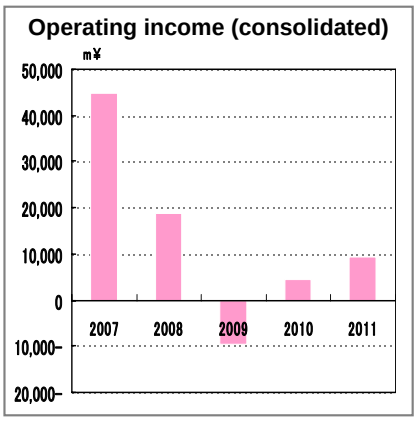


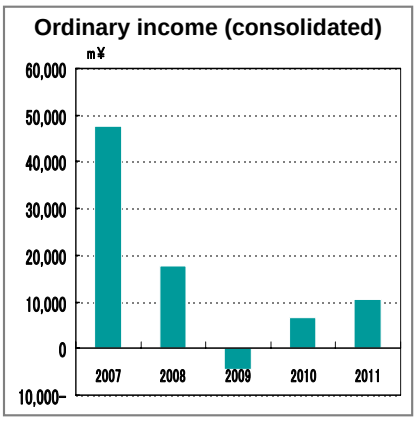


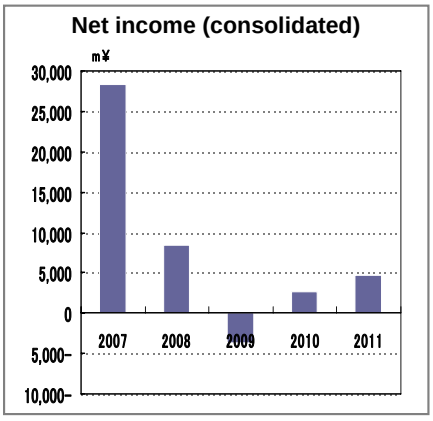


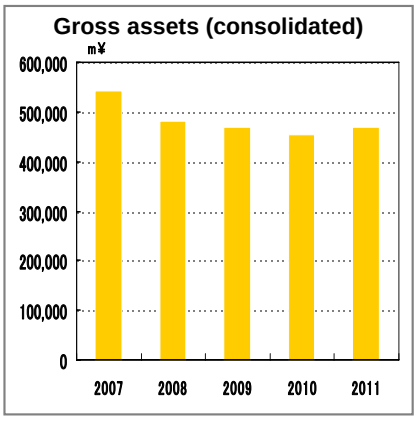


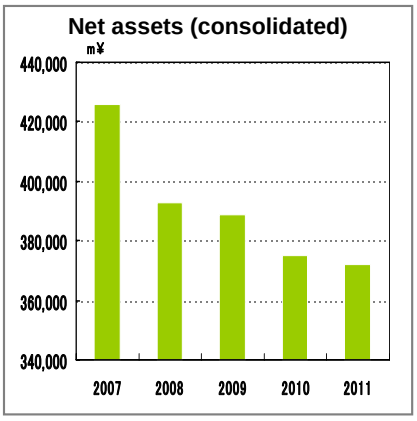












*Acronyms for Group companies: AMT (Amada Machine Tools), ATP (Amada Tool Precision), AEG (Amada Engineering), NCC(Nicotec)
*Number of Amada Group employees includes the 5 group companies of Amada, AMT (including former AMFG), AEG, ATP, and NCC. IR data is from Amada Group report.
* Scope of IR (Investor Relations) data: Amada Group consolidated reports

Amada products

Here is our product lineup – the Amada Group provides machines, software, peripheral equipment, and consumables for all metalworking processes including sheet metal processing, and cutting/pressing/machining.

Punching machine
EM-2510NT

Laser machine
FOL-3015AJ

Bending machine
HDS-8025NT

Bending robot system
ASTRO Ⅱ-100NTCELL

Punch & laser combination machine
ACIES

Peripheral equipment
LC-3015F1NT + ASF-3015F1

Tooling
Punching tools / Bending tools

◆ Punching machines

Machines that punch various holes (round, square, and others) and cut sheet metal

Punching machines can punch out almost any shapes from sheet metal by using various punching tools. They can also create partial 3D shapes with forming tools, and drill/thread holes.

◆ Laser machine / combination machine

Machines that open holes and cut sheet metal with laser beams

The laser machine has the capacity to cut complex lines since it cuts the material with laser beams.

Using a fiber laser oscillator developed in-house, the FOL-3015AJ is a next-generation laser machine that allows for high-speed and energy-saving processing, as well as offering improved machining performance with highly reflective and difficult-to-cut materials.

A combination machine is a machine with the functions of both punching and laser machines in one to promote process integration.

◆ Peripheral equipment

Peripheral equipment such as feeding units and unloading units are mounted to punching, laser, and combination machines to constitute an advanced automated sheet metal fabrication system.

◆ Bending machine / automated bending system

Also called “press brakes,” the machine bends sheet metal with two tools on the top and bottom

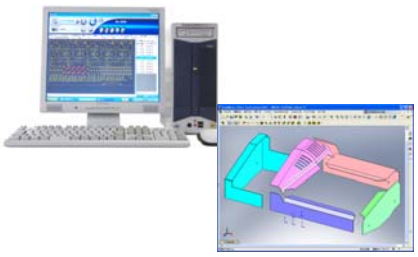
A sheet metal piece in a flat layout, which has been cut out with punching or laser machines, is bent with bending machines to create a 3D shape.

For bending processes with a large lot sizes, we also have an automated bending system in which robots lead the machines in bending.

◆ Tooling

Punching tools are used for punching machines, and bending tools are used for bending machines. Such tooling is also offered by Amada.

Software
AP100 / SheetWorks



Welding machine
FLW-4000M3

Stamping press machine
SDE-2025

Band saw machine
PCSAW-430

Lathe
S-10

Grinding machine
TECHSTER-126

◆ Software

CAD/ CAM software for sheet metal parts and sheet metal machines

In order to process the sheet metal parts the way customers like, we must give a series of commands to the machine. Our automated programming system and other software make this possible.

◆ Welding machines

One of the methods for bonding the sheet metal parts bent with bending machines is welding. Amada offers a laser welding machine and a spot welding machine.

◆ Stamping press machine

Machines used for forming thin sheet metals with tooling

Stamping is a process where various 3D shapes are created from thin sheet metal. Typically, dies are attached to the stamping machine, sheet metal material is held in between them, and pressure is applied to create 3D shapes.

◆ Band saw machine

Machines that cut round bars and structural steels with band saw blades and circular saw blades

In addition to the sheet metal machines, Amada also offers band saw machines used for cutting round bars and shaped steels such as H beams.

◆ Lathe

A lathe is a machine tool that cuts a rotating workpiece

A lathe is a machine tool that cuts metal with a fixed turning tool by rotating the material. Amada also has a combination lathe machine that can make holes or screw holes into a workpiece after lathe turning.

◆ Grinding machine

A machine that processes the workpiece by grinding with rotating grindstones

A grinding machine processes a workpiece with grindstones that are rotating at high speed. It is used for processing very hard materials that other machines can't process, or in finish machining that requires high precision.

Band saw machines, lathes, and grinding machines are manufactured and sold by the Amada Group's Amada Machine Tools.

Special Feature No. 1:
The Eco-Friendly Toki Works Plant

The Toki Works is based on the concept of "Harmony with the Environment." The site incorporates functions aimed at achieving harmony with the environment, such as solar power generation, geothermal heat-based air-conditioning, the use of rainwater as a resource, and a biotope.

Toki Works

October 2011 saw the opening of the Toki Works, on a section of the Toki Aqua Silva Industrial Park, in Toki City, Gifu Prefecture. The complex comprises a plant to manufacture machine tools and cutting machines, as well as a Development Center and Technical Center, all on the same site.

The design of the Toki Works is based on the concept of "Harmony with the Environment." The Technical Center building is a zero carbon emission facility, and all its energy needs are met by energy produced on the Works site.

The Toki Works covers an area of 156,657 square meters. The Technical Center, which carries out demonstration processing, is equipped with the latest lathes, grinding machines and bandsaws, and serves as a solution proposal center, where not only the functions and performance of machines can be tested, but also their operability and workability. Meanwhile, at the Development Center, we are now able to tackle product development based on the challenges faced by our customers, using something called front-loading development. This is a design stage, virtual verification method for various kinds of challenges, such as concurrent development, which comprehensively develops machines and software, as well as heat and warping.

◆ Solar power system

There are 1,710 solar panels on the roofs of the Technical Center Building, the plant building, and the office building, while the glass in the entrance to the Technical Center Building is fitted with 66 thin-film solar panels. All these create a total power output of around 300kW. In addition, 48 solar LED lights have been installed in the Toki Works parking lot (each light consumes approximately 120W).

◆ Geothermal air-conditioning system

The temperature underground remains almost the same throughout the year, and it's well known that in the summer it feels cool. A system has been installed at the Technical Center Building in which storm drains buried on the site are used to draw up geothermal heat, which is then used as the heat source for the air-conditioning system.

◆ Rainwater usage system

Rainwater which falls on the roof of the Technical Center Building is stored in a storage tank, and is then used for watering plants on the site, and as supplementary water for the pond.

Efforts made to become zero carbon rated

Energy use in the Technical Center Building is covered by a combination of energy conservation and produced energy.

As the phrase makes clear, the latter is energy that's produced on the Toki Works site. The Technical Center Building makes use of produced forms of energy, such as solar power, geothermal use, and rainwater use. Energy-saving systems are also employed, in parallel with produced energy.

◆ Heat storage tank

The upright water thermal energy storage tank in the Energy Building uses electricity to store chilled water during the night, and then this water is used for the plant's air-conditioning system during the day.

◆ LED Lighting

The lighting in the Technical Center Building relies entirely on LEDs. Thanks to this LED lighting, the annual reduction in power use is approximately 35,000kWh, while the volume of CO_2 emissions that are reduced is 16t-CO_2.

◆ Natural ventilation system

Using the chimney effect of the high ceiling in the entrance of the Technical Center, the breeze blows in through the ventilation opening, which is alongside the pond, and passes along the ventilation shafts and up the chimney above the corridors, thereby creating a natural ventilation system. This system has brought about an annual reduction in power use of 21,900kWh, while CO_2 emissions are 10t-CO_2.

A relaxing 'power spot'

A heart-shaped 'biotope'

The biotope at the Toki Works makes effective use of spring water on the site, and was planned as a storage pond that can be used for irrigating plants on the site and so forth. It covers an area of 200m^2 and holds approximately 100 tonnes of water. Spring water is first collected, then released into the pond. Spring water uptake valves have been installed at 10 spots on the bottom of the pond. Water that comes up from beneath the waterproof sheet that covers the bottom of the pond is then taken by these valves to the center. Although water can enter the valves from the exterior, they are designed so as to prevent pondwater leaking from them. When water levels in the pond are high, the valves have been measured to carry 1 litre of water every 3 seconds.

What makes this pond distinctive is the fact that it's heart-shaped when seen from above. Granite from the local area – known as *mino kurama* – has been used around the edge of the pond. Water, greenery and stone come together in harmony to form this Toki Works "power spot" [a place thought to be flowing with mystical energy], which also serves as an oasis of peace for company employees. Even foxes make the occasional visit there.

Special Feature No.2:
Amada's new ECO PRODUCTS

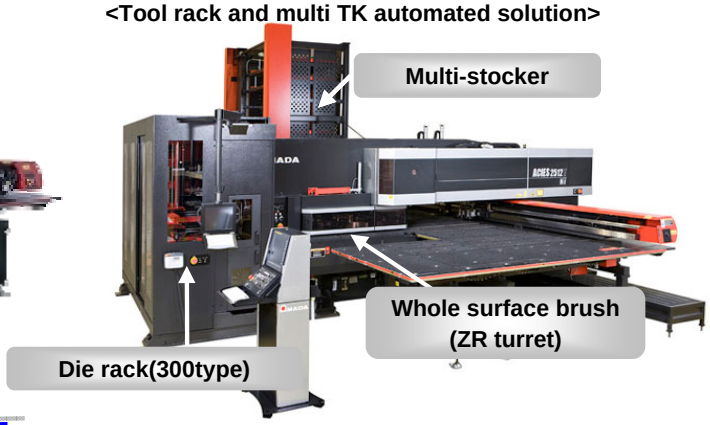
With a maximum 50% reduction in power consumption (compared to conventional Amada models), and completely eliminating secondary wear on machined products, Amada is proud to present the state-of-the-art, next-generation combination machine ACIES ["aki-ess"] Series, for variable-type, variable volume production.

◆ **ACIES Series**

With today's variable-type, variable-volume production, in which new, increasingly high quality products have to be delivered within tight deadlines, there is much reliance on the machine operator, beginning with production control, at the start of the manufacturing process, and also including programming, changing of die and punch sets, processing and so forth. With regard to these operations, by adopting new technology, we have reduced the number of man hours, mitigated the degree of human error, and created a product that can respond to next-generation product quality and production systems.

<Single buffer turret solution>

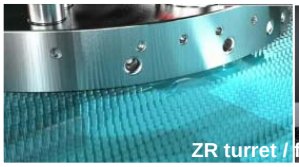
<Tool rack and multi TK automated solution>



<ACIES Series new technology>

◆ **Now offers high speed, secondary wear-free machining! Features full flat table and ZR turret, with lower turret having gone**

Owing to the full flat table structure with ZR turret, dies only come up when punching process is in operation. This allows for rear abrasion-free and high speed machining when moving from one kind of work to another.



Moving from one kind of work to another

Brush table opens up for punching processes, and dies emerge

◆ **A new filings suction device – a highly efficient mechanism that works on all stations and prevents filings emerging**

Our high performance filings suction device has been given a new lease of life, and now comes fitted with a newly developed attachment.

For each station there are 3 levels of suction controlled by an inverter, thereby preventing filings from emerging.

◆ **Stabilization of high quality machining, ID dies to prevent mistakes when setting up dies**

Not only does ACIES let you know when you've made a mistake setting up the dies and informs you of maintenance periods, it also automatically adjusts height to suit the amount of die polishing.

This makes high grade machining possible without the bother of carrying shimming adjustments.

◆ **Deadzone-free machining through a slight avoidance mechanism in the workcramp and dies. Die free location**

Due to changes in the die layout to the turret, and the adoption of the ZR turret, it's now possible to have a slight avoidance between workcramp and dies, and the restriction on die allocation has been removed. In addition, optimal die layout is done automatically and programming has been made simpler, all of which boosts yield.

◆ **Energy-saving mode dramatically reduces power control consumption during standby mode**

During punching operation, the power consumption of oscillators and chillers is gradually reduced. Depending on the type of machining being done, power consumption is reduced by 30% to 50%.

◆ **Linkages with general-purpose CAD and production control**
Automatic creation of optimal machining data "Open interface Totally automated CAM"

Creation of a sheet metal development diagram for batches, from DXF data created using 3-dimensional CAD model and automatic programming. Links are made to production control systems, and the machine automatically creates punching/laser machining allocation to meet customers' quality criteria.

*ACIES: From the Latin word meaning "forefront"
*ZR Turret: this is a turret with a different diameter, allowing for automatic changing of punches and dies, and in which the lower turret is stored below the brush table

History of the development and market launch of punch & laser combination machines

1987～

- In 1987, Amada develops and launches the first complex punching and laser-beam machine, the MLPAS (set press + laser machine)


MLPAS134

- **The development and launch of the APELIO series**
  (mechanically-driven turret punch press + laser machine)


APELIO Series

1988～

- **The development and launch of the APELIOⅡ series**
  (hydraulically-driven turret punch press + laser machine)


APELIO Ⅱ 245

1998～

- Amada begins its ECO PRODUCTS certification system
  (Low environmental impact products)

2000～

- **The development and launch of the APELIOⅢ-255 EcoNT**
  (Ball screw servo drive-type turret punch press and laser machine)
  * Amada ECO PRODUCTS No.1


APELIO Ⅲ 245 EcoNT

2004～

- **The development and launch of the EML-NT series**
  (Electrically driven turret punch press and laser machine)


EML-NT Series

2008～

- **The development and launch of the LC-C1NT series**
  (Ball screw servo drive-type turret punch press and laser machine)


LC-C1NT Series

2011～

- **The development and launch of the ACIES series**
  (Electrically driven turret punch press and laser machine)


ACIES Series

FOL-3015AJ
Winner of the 2011 (54th) Masuda Award of Nikkan Kogyo Shimbun's The Best 10 New Products Prize

In January 2012, the FOL-3015AJ fiber laser machine won the 2011 (54th) Masuda Award of Nikkan Kogyo Shimbun's The Best 10 New Products Prize.

The entries for the "10 Best New Products Awards" are chosen from products which have been developed and made commercially viable that year, with the Awards being conferred on products which contribute to the development of product creation and the strengthening of Japan's global competitiveness. Given this competition, the conferral of the Masuda Award therefore signifies that a product is particularly outstanding. The FOL-3015AJ is a fiber laser cutting machine developed in-house from an oscillator, and it is sure to play an invaluable role in product creation at many of our customers' plants.

The S-10 – an ECO PRODUCT

The S-10, which has been developed by Amada Machine Tools as an ECO PRODUCT, is a combined processing machine which has made it possible for one machine to complete four processes which were conventionally carried out using four different machines. As a result of consolidating these processes, power consumption has fallen by 10%, in terms of the energy-saving effect when the machine is in use, and processing time has been reduced by around 45%.

Furthermore, in order to reduce the standby power consumption when the machine is not in operation, we have added a function which automatically switches the machine to energy saving mode when it has ceased operating for a certain period of time. In terms of purchased parts, we make sure that chemical substances regulated by the RoHS Directive are used for components that come into contact with customers' products, and for daily inspection and maintenance parts.

Environmental Management

Amada Group's mid-and-long-term environmental plan

The Amada Group will strive to promote environmental activities to ensure sustainable development of our business and society. Amada will help to build a bright and prosperous future for people around the world by providing environmentally-friendly, and energy-saving products.

◆ Long-term environmental plan

In order to make further advances with its environmental conservation activities, the Amada Group has drawn up a long-term environmental objective (dubbed "Amada Green Action"), that extends as far as 2020. With this goal in mind, it is tackling issues such as the development of ECO PRODUCTS, as well as energy and resource conservation, along with waste reduction, by improving the efficiency of its business activities.

Three goals of "AMADA GREEN ACTION"

■Products

By 2020, we will reduce CO_2 emissions of all products by an average of 25%.

■ Product creation

By 2020, we will reduce CO_2 emissions from our establishments and factories by 25% in terms of specific consumption.

■ Biodiversity

We will focus our efforts on conserving and regenerating biodiversity in order to pass on this country, which is rich in natural blessings, in good shape to future generations.

◆ Mid-term environmental plan

	Themes of activities	Mid-term goal (fiscal 2014)	Goals for fiscal 2011
Preventing global warming	[Product development] Reduce CO_2 emissions*1 throughout the product life cycle to contribute to the prevention of global warming	Release products with reduced CO_2 emissions by an average of 25%	Reduce CO_2 emissions through the release of ECO PRODUCTS (As a whole: -9.5%; Sheet metal machines: -15.8%; machine tools: -3.5%; cutting: -2.7%)
Preventing global warming	[Business activities] Promote energy saving and resource saving in business processes to reduce CO_2 emissions	Prevent global warming by promoting energy saving "compared against the benchmark year *2: -15.6%"	Reduce by 1.4% from the previous year (domestic Amada Group) (+0.3% against the benchmark year)
Effective utilization of resources	Promote effective use of limited resources and contribute to creating a recycling society	(1) Achieve "clean factories" ・Development of material flow cost accounting and highly efficient production ・Waste reduction based on a resource-saving roadmap (Fujinomiya, Amada Tool Precision, Amada Machine Tools Toki)	・Introduction and horizontal development of material flow cost accounting (Amada Tool Precision, Amada Machine Tools Toki) ・Improvements to extending the life of water used in cutting (Amada Machine Tools Toki)
Effective utilization of resources		(2) Achieve/maintain zero-emission factories (6 main facilities) - Less than 1% a year of landfilled solid waste (relative to total waste)	・Continuation of zero emission plants (Amada Tool Precision, Fujinomiya, Komaki) ・IN measures (reducing packaging materials, shift to returnable case system) (Amada Tool Precision, Fujinomiya, Amada Machine Tools Toki, AEG)
Regulated chemicals control	Strengthen activities related to control of regulated chemicals	(1) Product development with green procurement (Total abolition of RoHS directive *4 chemicals)	Fully abolish RoHS directive chemicals
Regulated chemicals control		(2) Reduce the use of regulated chemicals "Appropriately control chemical substances, and reduce their use within the manufacturing process" (PRTR *5, VOC *6)	Strengthen environmental risk management - Strengthen measurement/monitoring of hazardous materials storage/control - Strengthen compliance including laws and regulation compliance assessment
Regulated chemicals control			- Reduce PRTR regulated chemicals - Promote VOC reduction activities
Biodiversity	Preserve and regenerate biodiversity to pass on this country, which is rich in natural blessings, in good shape to future generations.	Growing the "Amada Forest" which is beneficial for conserving biodiversity	・Formulation of the Amada Forest development project, implementation of survey ・Formulation of the Amada Group "Biodiversity Guidelines for Action"
Environmental management	Respond faithfully to voices of stakeholders including customers to fulfill social responsibility as a company	・Strengthen the Amada Group's environmental administration, and promote CSR activities ・ISO14001 group integration (7 sites)	・Promote Group-wide activities through the establishment of an environmental "eco" promotion committee ・ISO14001 integration (Preparation for Toki Works' gaining certification)
Environmental management		・Implement environmental communication	・Issue the environmental report "Forest-In Office 2011" ・Implement risk communication ・Organize "eco" factory tours ・Participate in regional clean-campaigns

*1: CO_2 emissions data is calculated based on the calculation manual for the "Act on Ptomotion of Global Warming Countermeasures"

*2: Benchmark year: FY2007

*3: Material Flow Cost Accounting: a new method of environmental management accounting that focuses on waste generated during production processes. It is one outstanding environmental accounting method that achieves both "reduction of waste" and "productivity improvement" at the same time.

◆ Amada Group Environmental Management

The efforts made by the Amada Group, which are the driving force behind its environmental management promotion, consist of environmental activities which are in accordance with products' lifecycle. Our activities aim to reduce environmental impact across the whole of a product's lifecycle, "from the cradle to the grave", as it were, starting with its planning, development, procurement, manufacture, sale, shipping and use, ending finally with its disposal.

At Amada we are developing lifecycle management to create this kind of entire life for our eco-friendly products.

◆ Performance in fiscal 2011

In fiscal 2011 we actively made efforts in five different areas – global warming prevention; efficient use of resources; chemical substance management; biodiversity; and environmental management – and the following table shows how we performed.

	FY2011 results	Goals for FY2012
Prevention of global warming	Reduce CO_2 emissions by releasing ecological products (As a whole: -3.9%; Sheet metal machines: -10.5%; machine tools: -1.2%; cutting: 0%)	Reduce CO_2 emissions by releasing ecological products (Amada Group as a whole: -7.2%)
	Reduce CO_2 emissions at major domestic bases by 9.14% relative to the year before (-7.6% relative to the benchmark year)	3.9% reduction over previous year for Amada Group's Japan operations (down by 4.8% on base year)
Effective utilization of resources	・Horizontal development of material flow cost accounting ・Continuous improvements to IN-OUT measures	・Development of material flow cost accounting and highly efficient production ・Continuation of improvements to IN-OUT measures
	・Maintaining of zero emission plants (Amada Tool Precision: 0.02%, Fujinomiya: 0.236%, Komaki: 0.0%) ・IN measures: continuation of reduction of packaging materials used in product delivery (Amada Tool Precision, Fujinomiya, Amada Machine Tools Toki, AEG) ・OUT measures：opening up of recycling channels for landfill waste (Ono)	・Aim to achieve zero-emission plants at 4 sites (Amada Tool Precision, Fujinomiya, Ono, Amada Machine Tools Toki) ・Continuation of IN/OUT measures
Regulated Chemicals control	・Completion of survey into RoHS Directive compliance for items procured from overseas ・Product assessment carried out (26 new models) ・Publication of Japanese version of Green Procurement Guidelines	Efforts towards total elimination of chemical substances regulated by the RoHS Directive ・sheet metal and machine tools destined for EU export to be RoHS-compliant
	・Maintained Hazardous Materials storage management and supervision (at each site) ・Strengthened storage management through the building of a new Hazardous Materials Storage Depository (Isehara) ・Formulated Guidelines (provisional) on Waste (Isehara)	Strengthening of environmental risk management ・Strengthening of compliance with regard to waste ・Regulation management through register of laws and regulations, and compliance checks through compliance assessment (Nicotec Co. Urawa, AEG)
	・Toluene-free paint introduced (Fujinomiya) ・Paint efficiency boosted and solvent recycling implemented (Amada Machine Tools Toki)	Toluene-free paint use spreading across the group (AEG, Amada Machine Tools Toki) Tests of TX-free paint, and improvement of paint technologies (Fujinomiya) Improvement of operations through solvent recycling (Amada Machine Tools Toki)
Biodiversity	・Tree thinning and planting along approach road, based on the Amada Forest project ・Creation of the Biotope (Amada Machine Tools Toki) ・Drawing up of on-site ecosystem map (Isehara) ・Formulation of Amada Group's "Biodiversity Action Guidelines) (provisional)	Development of the Amada Forest project (Fujinomiya) Biodiversity activities in partnership with the local community (Isehara)
Environmental management	・Implementation of Group-wide activities through the Environmental Ecology Promotion Committee ・ISO14001 Integration Expansion of EMS at Amada Machine Tools Toki Works (Group expansion) and Kansai Technical Center (business office)	・Promotion of activities through ISO integration and Environmental Ecology Promotion Committee ・ISO14001 integration (Isehara, Fujinomiya, Komaki, Amada Machine Tools Toki, Kansai Technical Center)
	・Publication of the "Forest-In Office 2011" environment and society report (Sept.) ・Tour of eco-friendly plants (done once) ・Local cleaning activities carried out at each site	Publication of the "Forest-In Office 2012" environment and society report

***4 RoHS : Stands for "Restriction of Hazardous Substances." A directive that specifies hazardous substances contained in electrical equipment and electronics and prohibits their use.**
***5 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.**
***6 VOC : Stands for volatile organic compounds. Regarded as a cause for chemical sensitivity syndrome and sick building syndrome.**

Prevention of global warming (product development)

A large proportion of the CO_2 emissions in the lifecycle of Amada's products are given off during the usage stage. The development of products that give off low levels of CO_2 when used will therefore contribute to the prevention of global warming.

Product environment assessment and Amada ECO PRODUCTS

At Amada there are two systems for evaluating the environmental performance of a product. These are the product environmental assessment system, and the Amada ECO PRODUCTS certification.

Carried out at the design review (DR) phase at each step of the development process, the product environmental assessment system is an evaluation to ensure that we don't launch products that would have a major impact on the environment. This is applied to all new products, and we have a rule which prohibits the sale of any product which fails to pass this assessment.

The Amada ECO PRODUCTS certification, meanwhile, has been conceived as a form of assessment to impress on customers the superior environmental performance of a particular product. However, the definition of an Amada eco-friendly product contains a section regarding "products that create customer benefit", so products that have been certified as Amada ECO PRODUCTS have also been evaluated as those which bring major benefits to customers. The diagram below shows the relation between the product development process and environmental assessment.

Introducing Amada ECO PRODUCTS

◆ ACIES Series

ACIES Series is a complex punching and laser-beam machine which has been developed as the successor to the existing ECO PRODUCTS (energy and resource-saving) EML-NT Series. Through the adoption of an energy-saving mode for the laser oscillator and chiller (cooling device), ACIES Series makes it possible to use 30-50% less power consumption compared to EML-NT Series.

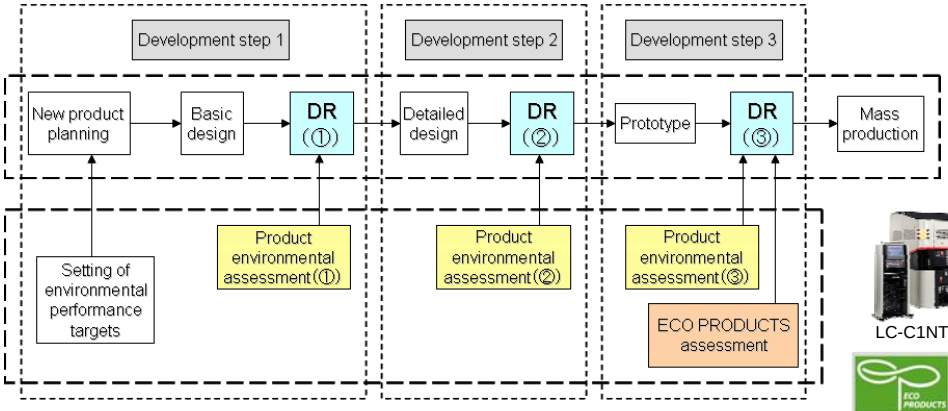
Also, thanks to workpiece secondary wear prevention by way of a full flat table structure with a ZR turret (a Z-type retractable turret), and improvements in yield through a track deadzone-free function which enlarges the punching area, the machine offers savings in resources, by reducing the incidence of defective products and producing less waste, for example.

◆ HD-NT series

Similar to the high-end HDS series, HD series is a down-stroking bending machine that has adopted the hybrid drive system combining the highly efficient piston pump and AC servo motor. This system minimizes energy loss during standby and pressure retention, and we have reduced the energy consumption to 50% compared to the existing model. HD-NT series also saves energy and resources with the highly efficient two-way rotating pump with half the heat value, using only half the hydraulic fluids.

◆ LC-C1NT Series

LC-C1NT Series is a complex punching and laser-beam machine which has been developed as the successor to the existing ECO PRODUCTS (energy and resource-saving) APELIOⅢ-255EcoNT. By positioning the laser processing function on the main body side of the machine, and by making it possible to move it towards the Y-axis of the laser head, we have reduced the amount of energy used when transitioning from one task to another, while offering high-speed, energy-saving processing. Furthermore, thanks to the high efficiency of the oscillator and chiller (cooling device), power consumption compared to conventional models has been reduced by over 35%.



Relation between the product development process and environmental assessment

ACIES Series

LC-C1NT Series

HD-NT Series

Amada ECO PRODUCTS symbol

・Design Review: In order to develop products that satisfy our customers, all the relevant business divisions assess the design plans created by our design teams from various perspectives, exchange views, and request improvements when necessary.

Eco Information Mark

Trademark # 5107472
5188839

Amada has started the Eco Information Mark system from August 2007. We understand the importance of providing information, and this is a way for us to provide information on environmental matters pertaining to Amada products more broadly and specifically.

Such information is provided together with the mark, so that we can easily communicate the details of our environmental efforts.

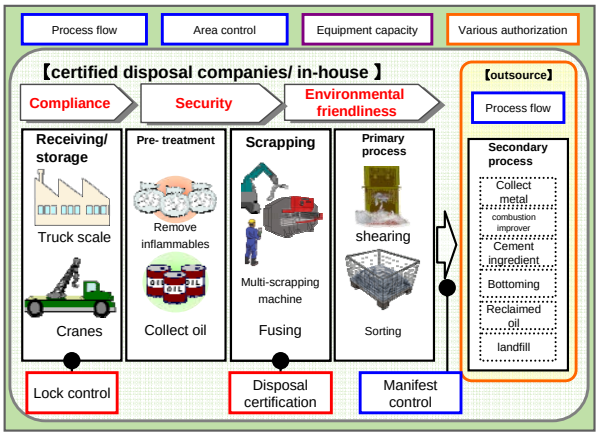
LC－C1NT Solution Notebook

Disposal certification system for used products

Based on the principle of Extended Producer Responsibility, we believe that we are responsible for seeing our products through to their proper disposal when they finish their product life. This is why we established our “disposal certification system for used products” in FY2008, and have been giving certification to waste processors who dispose of used products based on our standards. Currently, six facilities of two partner companies have been certified throughout Japan to provide proper disposal. The recycling plants at our certified facilities ensure compliance of all laws and regulations such as the “Waste Management Law” and the “Fluorocarbons Recovery and Destruction Law.” Furthermore, in addition to ensuring security, we also provide “disposal certification” to verify functional disposal of used parts. We will continue to increase the number of certified waste processors.

CO_2 emissions during disposal phase

We conducted research on the amount of CO_2 emissions and the environmental load during the disposal phase of used products, as a part of the LCA (life cycle assessment) of products. The CO_2 emissions for the disposal of 1 laser machine weighing 7 tons, for example, was 163 kg-CO_2. This equals to the disposal of approximately 5 personal computers. Our findings also show that the environmental load at the disposal phase is low with a high recycling ratio of 99%.



Flow of used product disposal process
Processors are certified based on our standards related to area control, capacity, and various permits.

We are studying the volume of CO_2 emissions given off at each stage of waste disposal by industrial waste disposal contractors.

Prevention of global warming (business activities)

We promote energy / resource saving in our business processes to reduce CO_2 emissions. Although we focus on CO_2 reduction issues here since they are relatively prominent, we believe that low-key efforts within individual business processes are crucial for achieving significant results.

Amada Group summer power-saving measures

In the summer of 2011, in the wake of the Great East Japan Earthquake, the government announced a Power Consumption Restriction Order, based on the Electricity Business Act. Viewing this Order as an urgent management challenge, the Amada Group implemented a power-saving initiative aimed at reducing demand for weekday peak power output by 15% at each of its business sites. Specifically, this means the company is implementing power-saving measures such as securing power supply through Sodium Sulfur NAS batteries and in-house power generation, introducing shifts in working hours through changes to its operations schedule and a summertime system with 30% thinned-out operation of lighting fixtures, making the change to pull-type switches, and restricting air-conditioning through the consolidation of buildings.

At the Isehara Works, although dates have been set for several private shows held throughout the year, which have become an even more integral part of the company's business than ever before, by making changes to the show's location and time, as well as the operation of machines on display, the company was able to save power by scaling down the show. This led to a reduction of around 25% of peak power consumption at the Isehara Works, and approximately 18% at the Fujinomiya Works.

Updating of the heat source equipment (heat pump chiller) for air-conditioning at the Ono Plant

In April 2011, the thermoelectric equipment for the air-conditioning at the Ono Plant was changed from a heavy oil-firing absorption-type cold water device to a heat pump chiller.

The heat pump chiller at the Ono Plant

As a result, we were able to cut CO_2 emissions by 60% in the first half of fiscal 2011, and 31% in the second half, or a 52% reduction for the year as a whole.

Air conditioning systems that use geothermal heat (Germany)

The Solution Center building of our overseas subsidiary Amada GmbH (Germany) is air conditioned with geothermal energy.

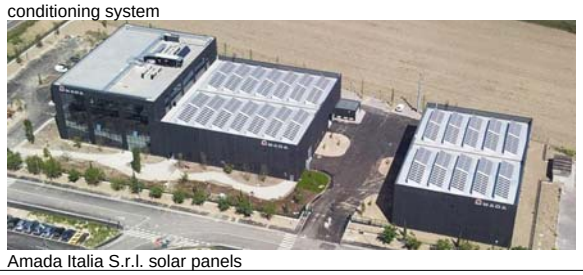
The geothermal heat stays around 10 degrees Celsius throughout the year, and the mechanism for using this heat for air conditioning is the "ground source heat pump." The company tells us that the geothermal heat exchanger in Haan is installed as deep as 130m.

In the past, natural gas and electricity were used for air conditioning at Amada GmbH (Germany), but now only less than half is from traditional energy sources. The company has also succeeded in improving the air conditioning efficiency by installing geothermal air conditioning duct on the floors.

Solar Energy Generation (Italy)

The Technical Center of Amada Italy, an Amada overseas subsidiary, is located in Piacenza, Italy, and solar panels are mounted on the Technical Center's building rooftops. The company has 800 panels, and the nominal maximum output is 138kW. Clean power generated from this equipment is being used to run the machines inside the Technical Center.

AMADA GmbH is using geothermal heat to improve the efficiency of its air-conditioning system



Amada Italia S.r.l. solar panels

Effective use of resources

Amada will contribute to a recycling-oriented society by promoting the effective use of resources. We are making various efforts in energy-saving and resource-saving by applying the ideas of employees on the front lines.

Systemization of display components at public exhibitions

In order to show products to our customers and make suggestions on product creation, we display our machines at public exhibitions, both in Japan and overseas. Timber was the main material for the construction of many of the display stands used at public exhibitions, and a great deal of waste was produced each time one was held. Therefore, in fiscal 2009 we switched to reusable system components and have been repeatedly using those, while components that are difficult to reuse are recycled.

Amada exhibited at both the MF-Tokyo exhibition, held at Tokyo Big Sight in August 2011, and Mechatronics Technology Japan 2011, held at the Nagoya International Exhibition Hall, in September the same year. The combined reuse/recycle rate for both of these exhibitions was 92%.

Along with our ECO PRODUCTS, in the months and years ahead we will continue to do all we can to make our exhibition display components environmentally friendly.

Zero-emission factories - Isehara and Fujinomiya Works

Zero-emissions is “a philosophy that aims for a society without waste, by recycling the waste discharged from a particular industry” (advocated by the United Nations University in 1994), and each company applies this by its own standards. Amada’s zero-emission standards are “we will keep the waste that eventually ends up in landfills under 1% of the total weight, and this must continue for over a one year period.”

One of our specific activities is “exit control,” which is “producing no waste.” We do this by finding recycling options for waste.

Another activity is “entrance control” which is “keeping waste out,” and and we are promoting the use of returnable cases and packaging material reduction.

As a result, the Fujinomiya Works has achieved the zero-emission standard in May 2008 and Isehara Works in March 2009, and the works have since maintained this status.

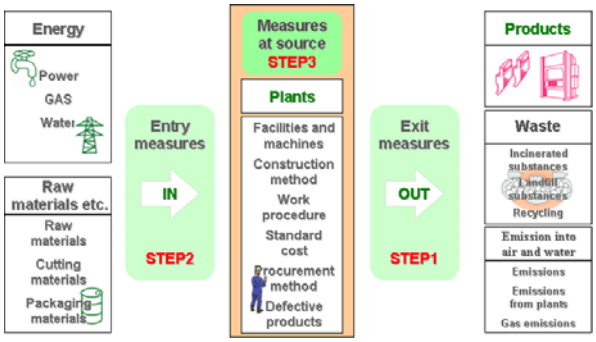
Clean Factory (Fujinomiya)

Clean Factory is an environmentally-friendly factory that reduces the environmental load generated by production, which includes zero-emission (reduction of waste) activities as well as energy-saving efforts. It also includes the reduction of CO_2 emissions to prevent global warming, and the reduction of VOC (Volatile Organic Compounds) used in factories. The Third Factory at Fujinomiya Works is the world’s largest assembling plant of laser machines, and it meets the standards of a Clean Factory.

This factory fully uses the Yatai booth production method, where each Yatai booth is a mini factory. All parts necessary for assembly are provided in a kit, and with all the necessary tools within the operators’ reach, they can continue working without interruption.

Furthermore, dust can cause trouble during laser machine assembly, so the production line has come up with creative ideas, such as changing the “air cleaners” to vacuums, and making the air compressor rotors ceramic in order to allow the use of water instead of oil.

Framework construction at the MF-Tokyo exhibition. Construction components are reused.



Steps towards achieving zero emissions at our plants

∗ Yatai booth production method: a production method that realizes clean and digital manufacturing through the use of an IT production control system. The parts are supplied to the booth JIT. One booth is approximately 80 square meters, and each booth is equipped with gas, air, water, and power, which are centrally controlled. Dust is also controlled to maintain a clean environment. (Yatai = portable stall in Japanese)

Amada Group's efforts towards effective use of resources

Although the Amada Group has currently achieved zero emissions at both its Isehara and Fujinomiya Plants, it is also promoting zero emissions at each of its other plants (namely the Komaki Plant, the Toki Works, the Miki Plant, the Urawa Works, and the Fukushima Plant). What follows is an explanation of some of those efforts being made at the Toki Works.

◆ Amada Machine Tools (Toki Works): Use of resin pallets and metal cage-style containers for transporting castings

When delivering castings, Amada Machine Tools has traditionally used wooden pallets to transport them, with the pallets being thrown away after delivery. With the relocation from the Komaki Plant to the Toki Works, delivery using wooden pallets has been forbidden, and the company now uses reusable resin pallets and metal cage-type containers for delivery. Each of the 200 pallets and 100 cage-type containers are numbered, and deliveries are managed, with the person responsible for receiving the goods in attendance for each delivery. We've also been able to keep the material storage area very tidy and well organized.

In this way, efforts are being made at the Toki Works to ensure that trash isn't brought into the plant.

Wooden pallets after conventional casting delivery

Resin pallets which can be used again and again

◆ Amada Machine Tools (Toki Works): Reducing packaging materials through sheet metal material handling delivery

Up until now, because sheet metal has been delivered as individual sheets, loaded onto wooden pallets and wrapped in vinyl film, a large amount of waste has been generated. So we have produced an assembly transportation material handling system that can be used again and again. Thanks to this system, we have eliminated packaging materials altogether, with wooden pallets and vinyl film no longer necessary. Furthermore, thanks to this material handling system, sheet metal, which was previously delivered as individual sheets, can now be delivered in its assembled state, and this has improved operational efficiency**.**

The Toki Works are currently carrying out assembly transportation material handling using the CNC Precision Surface Grinders TECHSTER-84 and TECHSTER-125. With regard to new products in the future, we are looking into material handling delivery from the prototype model stage.

Sheet metal that used to be vinyl-wrapped and delivered as individual sheets

Assembly delivery is now possible

Chemical substances control

Amada is reinforcing initiatives for controlling regulated chemical substances. We are committed to providing safe machines made of safe materials.

Green Procurement

Amada 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” that we established in April 2004.

Our products, including sheet metal machines, are not applicable for the RoHS directive enforced in July 2006, but we promote the non-use of RoHS controlled chemical substances because they may come in contact with our customers’ products processed with our machines.

◆ Chromate Treatments

Amada is currently changing from hexavalent chromium, which has a large environmental load, to the more environmentally-friendly trivalent chromium for the surface treatment of Amada designed mechanical parts.

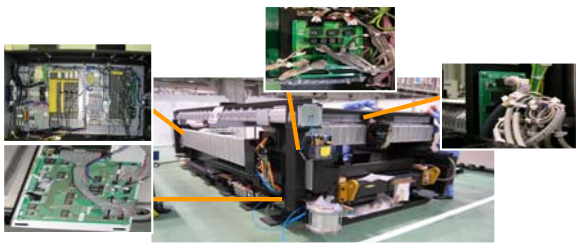
◆ Oils

All oil substances including operating oil, lubricants, and cutting oil, are categorized based on danger/hazardous levels according to GHS*, and the results are listed on the MSDS (Material Safety Data Sheet).

◆ Lead-free solder circuit boards

Lead-free solder circuit boards were developed as the electric circuit board in the control section of Amada machines. They are used in our LC-F1NT series.

Bending machine


LC-F 1 NT Series Lead-free solder board

Amada-designated parts for recovery

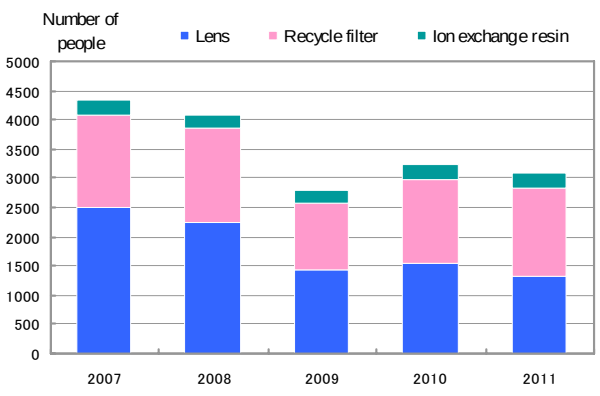
Among our products, there are some that contain chemicals that are now designated as regulated chemical substances because there were no materials available that could technically serve as substitutes at the time that they were manufactured. Normally customers do not come in contact with parts like this, but it wouldn’t be good for the environment if they were disposed of with the others. This is why we collect the parts that are replaced after their life cycle and dispose of them appropriately as a responsible manufacturer, according to the “Amada-designated parts for recovery” system that we established in 2003.

For instance, the light focus lens (coated with selenium compound) used in laser machines applies to this case, and after collection, we determine whether they can be reused, and if not, we dispose of them properly.

Trademark #4778275


Light focus lens for laser machines (includes selenium compound)

Number of recovered Amada-designated parts



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

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

Biodiversity

Amada will help preserve / regenerate biodiversity in order to pass on our land, which is rich in natural blessings, to the next generation.

Cherry Tree Approach

Cherry trees have been planted along the approach to the main gate at the Fujinomiya works.

In addition to replanting 26 *Fujizakura* cherry trees and adding 30 *omurasaki* rhododendrons (*Azalea*) which were raised at the works, 73 young *komatsuotome* (*Prunus pendula*) cherries have been newly planted.

With the new cherry trees planted between the existing maple and Japanese acers, those who walk the path will be able to enjoy the flowers, foliage and greenery, as they change with the seasons.

The newly planted cherry trees will flower by 2014, and within 3 or 4 years the *Komatsuotome* will exceed the height of the *Fujizakura*, increasing in beauty over time.

Amada's forest thinning

At the Fujinomiya Works, we have been thinning the Amada forest on the East Block side of the works since last March. So far, 2196 trees have been felled. Light can now reach the heart of the forest, making it brighter and creating an environment in which the undergrowth can thrive. It is expected to grow into a healthy forest.

The composting of fallen leaves on site

There are 164 Japanese zelkova trees at the Isehara works. Ten tonnes of leaves come down over fall and winter seasons. Those leaves are taken to a farm in Samukawa-machi, where they are composted over a period of three years. This compost is of a very high quality, and is used to help grow Chinese lantern plants, cyclamen and Madagascar periwinkle. The cyclamen grown using zelkova compost are sold cheaply to local residents and members of staff annually in early December at FORUM 246 within the Isehara Works.

Bringing the greenery indoors

The concept behind the Isehara works is that of the harmony of water, stone and greenery.

Therefore, much effort is put into bringing the greenery indoors. In order to encourage trees to grow indoors, metal-halide lamps are hung from the ceiling for illumination, while upper lights are used to maintain the temperature of the floor. We have also developed other methods, such as utilising double-layered floors to enhance drainage and soil improvement, and using pipes to improve soil ventilation. Consequently, it has been possible to grow trees using one tenth of the light normally required, and we have succeeded in nurturing *waboku* (slow growing hardwood) trees indoors; something that is difficult under normal circumstances.

Disposal of raw garbage

At the Isehara Works, a biological raw garbage disposal machine is used to process the food waste produced by the kitchens of FORUM246.

Previously, the 300 kg of raw garbage produced each month was incinerated at the city's facilities. Because the machine used now works by utilising a bacteria called '*Kataoka* bacteria' to break the garbage down into water and oxygen, no compost is created at all. Consequently, not only do we no longer have to pay to use the incinerator, but we are also able to dispose of raw garbage in an environmentally friendly way**.**

Wood from the forest-thinning

The leaves are taken to the farm, where they are made into compost

Thick-stemmed bamboo at the solutions centre. The light that can be seen shining between the bamboo is an upper light

The temperature-control light and the ventilation pipe from the ground

Biological raw garbage disposal machine

A table made from wood from the forest-thinning

Material balance

We quantitatively grasp and analyze the environmental impact of our products throughout their life cycle, and we apply the results to our environmentally- friendly business activities.

INPUT

Resources / raw materials
- Metal 31,621 t
- Nonferrous metal 547 t
- Oil 163 kL

Chemical substances (PRTR substance)
- Gasoline 29 kL
- Paint 264 t

Energy
- Electricity 53,294,000 kWh
- City gas 799,000 m³
- Kerosene 800 kL
- Others 92 kL

Water
- Tap water 43,000 m³
- Underground water 150,000 m³

Business Processes

- Plan/ DEV/ design
- Procurement
- Production
- Transportation / delivery
- Use
- Disposal / recycle

OUTPUT

Waste
- Total waste 2,842 t
- Recycled waste 2,425 t
- Final waste 78 t

Greenhouse gases
- CO_2 25,802 t
- NO x emission 0.71 t
- SO x emission 0.01 t

Impact on water environment
- Total waste 124,000 m³
- BOD waste 5 t

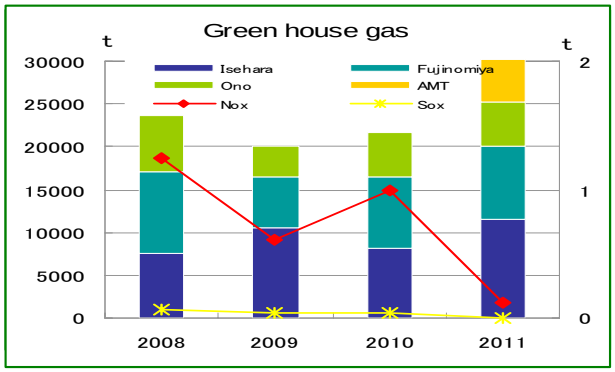
Chemical substances
- Waste 105.7 t

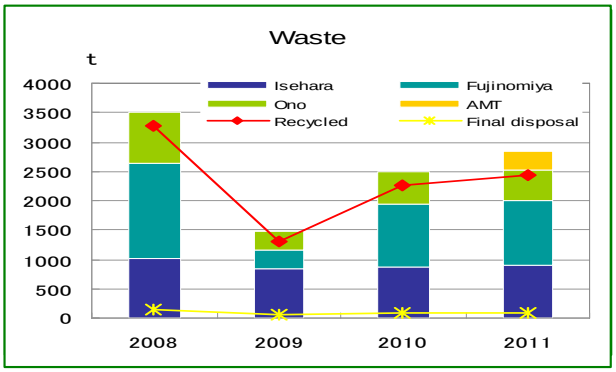
Gases emitted during transport
- CO_2 1,536 t (18,770,000 ton k*)

Recycling after product disposal
- Metal 2,128 t

Products

Data gathered from: Amada (Isehara, Fujinomiya, Komaki); Amada Machine Tools (Komaki, Fukui, Toki)





*Calculated with METI's revised CO_2 calculation method ton/kilo Alternative method B.

Environmental accounting

Amada 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 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.

Coverage was increased to include the Ono Plant from fiscal 2008, the Fujinomiya Works in fiscal 2009 and the Toki Works (Amada Machine Tools) in fiscal 2011.

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

The main areas in the conservation costs of the fiscal year of 2011 were the research and development costs related to the Amada ECO PRODUCTS, and the environmental conservation costs of the construction of the Toki Works.

The research and development costs comprise not only the costs relating to current ECO PRODUCTS certified models, but in addition the costs for new products requiring recognition as ECO PRODUCTS are also included in the calculations. The cost of test materials and the manufacture of jigs form a large part; but the test research expenses and the man-hours of the staff involved in development are not included. The environmental conservation costs mainly comprise capital expenditure at the Toki Works, such as the solar energy system and the underground heat circulation plumbing.

◆ Economic impact associated with environmental preservation measures

The main economic impact for FY2010 was the business income generated from waste recycling, etc. The breakdown of income consists of metal (iron, aluminum, and stainless-steel).

Unit：1000 yen

Environmental accounting items		Fiscal2007	Fiscal2008	Fiscal2009	Fiscal2010	Fiscal2011
Environmental preservation cost	Cost	821,452	323,689	456,854	882,927	850,541
	Investment	543,002	470,233	0	5,325	263,759
	Total	1,364,453	793,922	456,854	888,252	1,114,300
Economic impact accompanying environmental preservation measures		31,039	24,317	17,299	31,516	35,479

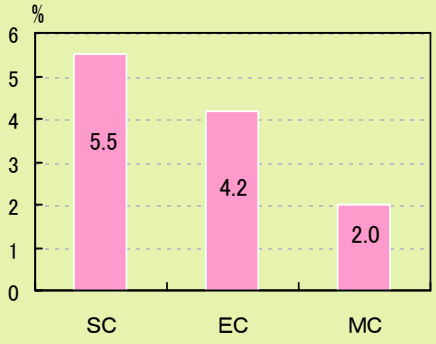
Environmental accounting items		Unit	Fiscal2010	Fiscal2011
The material effects related to the environmental conservation policy	CO_2	Tonnes of CO_2 per year	235.2	361.97
	Waste	Tonnes per year	21.37	50.35

◆ Material flow cost accounting

Material flow cost accounting (MFCA) is a method of calculating and analyzing the overall costs, focusing on resource and energy loss involved in the manufacturing process; together with the cost of materials, processing, facilities and so on are included in that loss as a ‘cost of waste’ .

In the die manufacturing division, MFCA was introduced in relation to the standard die (or punch) of the bending machine, where the difference is easy to see. MFCA was employed for five different dies, each with the same material, external appearance and dimensions but with different processing forms. Consequently, by ‘making waste visible’, we were able to reduce dramatically such costs as the material expenses caused by the alteration of dimensions, the system costs (those of personnel costs, management costs etc.), and energy costs (energy consumed by the machines etc.)

The rate of cost reduction following the application of MFCA



SC: System cost; EC: Energy cost; MC: Material cost

Our history of environmental activities

Amada has always deployed advanced environmental activities as a leading manufacturer of metalworking machines.

Amada and the environment

Amada has addressed the environment from the very early days of the machine industry, and it's been 14 years since the Isehara Works (where the headquarters is located) acquired the ISO14001.

We will introduce our history since the company was established, and our 13 years of environmental activities.

1948	Jun.	Amada Seisakusho (limited company) founded
1955	Jan.	First contour machine born
1961	Aug.	Isehara Factory built in current Isehara City, Kanagawa Prefecture
1964	Jan.	Company name changed to Amada Co., Ltd.
1969	Apr.	Headquarters relocated from Nakano, Tokyo to Isehara, Kanagawa
	Aug.	Joined the first section of Tokyo and Osaka stock exchange markets
1978	May	Amada Machine Tool Plaza built as 30th anniversary event
1979	Apr.	Headquarter building built
1987	Sep.	Fujinomiya Plant (currently Fujinomiya Works) established in Fujinomiya, Shizuoka
1991	Jul.	Clean Campaign activities started
1992	Apr.	New Amada Machine Tool Plaza opened as 45th anniversary event FORUM246 (training center) opened Software Center Building built
1994	Feb.	AMADA SFERA, symbol of Amada's environmental activities created
1996	**Sep.**	**ISO 14001 certification started**
1998	Sep.	Product assessment manual established (assessment of products' environmental impact)
	Dec.	Isehara Works ISO14001 certified
2001	Oct.	Amada ECO PRODUCTS certification system started
2002	Sep.	Fujinomiya Works ISO14001 certified
2003	Sep.	Press announcement for "Amada designated parts for recovery system" (recovering used parts that include regulated chemical substances)
	Dec.	Press announcement for reducing 10,000 tons of CO_2 in 10 years (CO_2 reduction for Amada facilities/ products)
2004	Mar.	Wind power plant installed (for generating power for foot lights)
2005	**Feb.**	**Kyoto Protocol put into effect**
2006	Apr.	Press announcement regarding response to RoHS directive (EU's regulation on restricting the use of Hazardous Substances)
	Jul.	**RoHS directive applied**
2007	Mar.	Development Center and Laser Factory completed at Fujinomiya Works
	Jul.	Amada Eco Information Mark established (environmental information on products for stakeholders)
	Sep.	Japan Forming Machinery Association (JFMA) Eco Machine Project participation
2008	Dec.	Ono Plant ISO14001 certified
2009	Jun.	Environmental report "Forest-In-Office" first issue posted on website
	Oct.	Parts Center at Fujinomiya Works opened
2010	Apr.	Amada Group Environmental Declaration
	Sep.	ISO14001 group certification for Isehara Works, Fujinomiya Works, and Ono Plant
2011	Nov.	Opening of Toki Works in Toki-shi, Gifu Prefecture Conversion of Technical Center into a zero-carbon facility

(green letters: global movement on the environment)

With our customers

In a bid to grow with our customers, the Amada Group makes social contributions by providing solutions for product creation.

Helping our customers affected by the Thailand floods

Following the flooding disaster that took place in Thailand, mid-October 2011, Amada and Amada Machine Tools quickly established a Flooding Countermeasures Office, both locally and in Japan, in order to help those who were affected.

Work done by the Flooding Countermeasures Office was as follows:

1) Messages of support for customers affected by the floods are shown on the Website, along with advice regarding the handling of damaged machinery.
2) As most customers in the Northern areas (such as the Rojana Industrial Park), to which access was prohibited due to heavy water damage, are Japanese companies, they were asked to visit head office in Japan so we could get information and find out what they required.
3) Clients located in central Thailand (around Bangkok), which are at risk of water damage, have been visited and strategies to limit damage have been arranged.

We are investigating, repairing, and working hard to get replacement machines up and running as soon as possible; doing our utmost for a swift recovery so we can return to business, while always responding to our customers' needs.

The Precision Sheet Metal Technology Fair

Amada and the Amada School, which promote "total solutions," have been organizing the PRECISION SHEET METAL TECHNOLOGY FAIR since 1989, with the purpose of contributing to the development of the metal-fabrication industry, and also enhancing training related to technologies and skills.

The 24th awards ceremony was held in March 2012. Perhaps due to the effects of the disaster, there were fewer entries than in previous years, with 146 in total. Of the entries, 27 were from overseas. Every year, there are items the creation of which is impossible to understand without consulting blueprints or the manufacturing process. It is such entries that make one appreciate the high level of skill involved.

One of the Amada School's missions is to "nurture skilled workers." We believe that manufacturing will lead to nurturing skilled workers, and we would like to contribute to human resource development through this Fair.

◇2011 - 24th The Precision Sheet Metal Technology Fair: prize winners

Sheet Metal Working Parts
Health, Labor and Welfare Minister Prize

Sheet Metal Working Parts
Gold Prize

Assembling Technology
Nikkan Kogyo Shimbun Award

Welding Fabrication
Japan Vocational Ability Development Association Chairman's Award

Formative Arts Fabrication
Gold Prize

Student Participation
Gold Prize

Quality Assurance

The Amada Group is committed to assuring a 100% Running Guarantee to Amada customers based on the “Amada Group Quality Assurance Policy.”

◆ The Amada Group Quality Assurance Policy

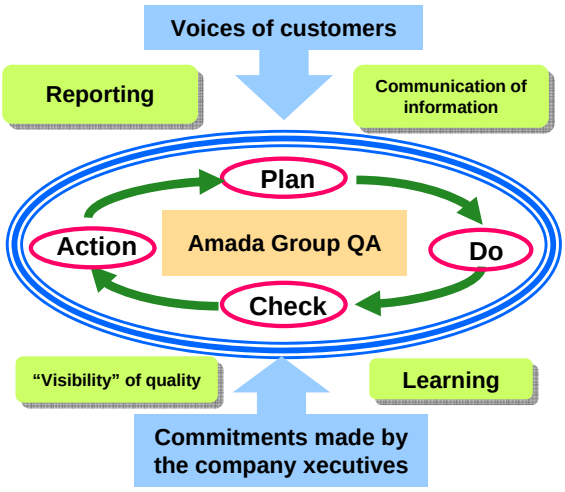
① The solutions and services the Amada Group provides globally will satisfy the customer expectations with regard to quality, and are reliable and attractive.
② The Amada Group will obey all laws and rules, and strive to continuously improve quality through PDCA.
③ The Amada Group will share information, review and check machines according to basic rules, and take proactive measures in order to prevent accidents.

◆ Amada’s initiatives on Quality Assurance

The framework of the Amada Group’s QA policy lies in the specifications/ standards/ criteria which incorporate the approach of the ISO9001 international standards. We will continuously improve and enhance quality through PDCA cycles, and pursue customer satisfaction while nurturing our "4 cultures.”

◆ Global Quality Assurance

The Amada Group has established the “Global QA Committee” to resolve important quality cases for both Japan and overseas, and respond to global customers through problem solving and data control based on subcommittee meetings related to respective functional departments.



Service Parts Supply

As a responsible manufacturer, the Amada Group has established, and operates under, a system for promptly supplying service parts as long as customers’ machines are running.

◆ Parts Center

The Parts Center started its operation in October 2009 as the core facility of our service segment including “before-service*.” We are connected online with all our domestic customers, and our computer system, linked with our corporate system, is equipped to process all past maintenance data and a vast amount of daily service data. The service parts we have on supply consist of 930,000 pcs / 60,000 items. With maximum storage capacity of 1,300,000 pcs / 80,000 items, the Parts Center is the largest of its kind in the machine industry.

It is a 24/7 facility that supplies to global customers; its target is to improve the rate of immediate delivery to 98%, with urgent deliveries within one day for Japan, and two days for overseas customers.


Amada Parts Center


Equipped with mobile computers and printers


Bucket with IC chip inside, and picking cart with monitor

∗ Before Service: creating machine charts for individual customer machines with service history, and changing the parts before the machine stops running, instead of after the machine stops from failures.

With our local community

The Amada Group participates in various community-contribution activities to foster effective communication with local communities.

Talk on the Eastern Shizuoka earthquake disaster and the resulting damage

On 16th May, on invitation from the Shizuoka trade and industry development section, the managing director of general affairs and human resources at the Fujinomiya Works of Amada Co. Ltd., spoke at the 'BCP Precedent and Action' lecture in Shizuoka, the audience of which was small and medium-sized companies in Shizuoka Prefecture.

Fujinomiya was severely damaged in the Eastern Shizuoka earthquake which happened four days after the Great East Japan Earthquake, reaching 6 on the JMA scale. The Fujinomiya Works also suffered structural damage, with buildings and facilities destroyed, as well as damage to the substation facilities. However, thanks to the actions of the 'Amada BCP* Fujinomiya Version', swift recovery was possible despite the high levels of damage.

Fujinomiya Eco Fair

On the 15th and 16th of October, an environmental fair was held at Fujinomiya city hall. On this occasion, the main focus was on resources and displays about the 'environmental Dojo', a place for educating and informing the staff about the environment, which opened at the works in June. The reaction was very positive; one member of the education sector even approached us requesting use of part of the exhibition for an environment-themed event taking place in the city.

Exhibiting at the Kita Harima Business Fair

In October 2011, a business exhibition called the "Kita Harima Business Fair" was hosted in Kita Harima where the Ono Plant had a stall. This event was held with the purpose of promoting networking and information exchange between enterprises working in the region of Kita Harima in Hyogo Prefecture.

Taking part in the World Skills Championship

Amada UK offered support by providing machines and technical support to the World Skills Championship held in November 2011 in the O2 Arena, London, UK. The machines provided were the Laser Machine Quattro and the bending machine HFE-M2-5020. There were also service engineers on site to offer advice on work and safety to the young skilled workers.

In addition to the competition, there were interactive activities such as making a plane using the Quattro machine etc., and there was a prize for the person who did it most quickly each day. The hall was buzzing as there was so much to do and see. Over the course of the 4 days, in excess of 2,500 planks were used, proving just how popular the event was.

Supporting the Oyama uphill marathon

Every year Amada gives special sponsorship to the Oyama uphill Marathon which takes place in the city of Isehara. The runners set off from the north exit of the Isehara station on the Odakyu line, up to the "*Ohyama Afuri Shrine Shimosya*" and back; a course which is 9.0km long, rising 650m over the course. 2,169 people from all over the country took part in the 27th marathon on March 11th 2012, of whom 2,046 completed the course. Five guest runners who were world athletes or Olympic athletes also took part, and there was a lot of excitement on the day.

On the day before the event, March 10th, we invited the guest runners to visit the Amada Solution Center where they had a look around the Amada machines.

Fujinomiya Works, Eco fair

Ono Plant, Kita Harima Business Fair

Start of the Isehara Oyama Uphill Marathon

Amada UK, World Skills Championship

* World Skills Championship: the aim is to promote work training and allow young skilled workers from across the world to get together. There were 1000 young people from 51 countries at this year's event, and it was visited by over 200,000 people over the 4 days.

* BCP: Business Continued Plan

Plant Tours

The Amada Group encourages local schools and community groups to come to visit the premises. We will briefly outline some of them here.

◆ Elementary School Social StudiesVisit

Every year, local elementary school pupils visit the Isehara Works; in 2011 we were visited by 54 third-graders from the neighboring school.

◆ Visits to the plant by local people

In March 2012, the Fujinomiya Works were selected for an "Excellent Eco-friendly Enterprise Plant Visit" by the city of Fujinomiya, and 23 citizens who are interested in environmental issues came to visit.

◆ Plant Visits by Community Groups

In Toki City, Gifu Pref., there is a group which serves to connect people concerned with improving the plant apartment blocks and local people called the "Aqua Silva Communication Group". They came to visit the Toki Works in December.

Lecture Visit to a High School

We visited a public high school in Kanagawa to deliver a 50 minute lecture to 240 first-year students on work and careers. The lecture was about the pleasure and difficulties of work, the skills required, duty to work for your community, and what society expects from them, in order to help the pupils improve their awareness of their work options after school and to deepen their understanding of the business.

The pupils seemed to get a better understanding of the structure of society, to which they had not previously felt a close connection, and also the importance of work.

The Amada Group Clean-Campaigns

The Amada Group actively participates in regional clean-campaigns near to facilities and in local areas. Here are some of the clean-campaigns our group companies are taking part in.

◆ Fujinomiya/ Tanuki Lake Walk

The Labour Union and the Environmental Health Group held a joint event in June, which saw over 120 people walking by Lake Tanuki.

In November 2010, we received an award from the Fujinomiya City Committee for Promotion of Environmental Improvement presented by the Mayor of Fujinomiya.

◆ Ono Clean-Campaign

This took place once during Environment Week in June and again in March at the end of the fiscal year at the Ono Plant. Across the 2 events, a total of 110 people took part who cleaned the area around the plant.

◆ Isehara Riverside clean-campaign

In June every year at the Isehara Works, we take part in the annual river cleaning operations organised by the Isehara Environmental Protection Group, to improve the riverside along the Shibuta River which flows through the city of Isehara.

◆ Amada Machine Tools・Beautify Komakiyama Drive – a spring walk to clean up Komakiyama

In April, the new recruits to the company took part in a cleaning event organised by the Komaki Civic Improvement Association.

Through this event they have a valuable opportunity to meet with the local people.

Visit to Isehara Works by elementary school pupils of social studies course. They asked a lot of interesting questions.

Visit to Fujinomiya Works by local citizens. They were very interested to visit the Environment Dojo which is a center for education

Fujinomiya Works: An award from the Fujinomiya City Committee for Promotion of Environmental Improvement

Amada Machine Tools Mt. Komaki spring walk

* Isehara Local Environmental Protection Group: A group made up of the City of Isehara and companies within it, with the aim of promoting environmental conservation in the local community.

With our employees

Amada values each of its employees, their families, and everyone associated with the company, and we are trying to become a better company through our activities.

Facility tours for families

We offer tours of our works to family members of employees so that they can become more familiar with Amada and gain a better understanding of what we do.

◆ Isehara Works

We held a tour of the Isehara Works on November 6. We usually limit participation in our tours to children who are in kindergarten through high school, but this year—the fourth year since we started offering tours—we lifted this restriction. As a result, the number of participants rose to a much higher level than before: 214 people from 59 families.

◆ Fujinomiya Works


A tour of the manufacturing process

We offered a tour of the Fujinomiya Works on November 5. This year—the fifth year since we began holding tours—we changed our perspective and focused our invitations on the parents of young employees and teachers from these employees' alma maters. We con-ducted the tour on a workday rather than a holiday so that parents could see their children and teachers could see their former students working as full-fledged members of society.

◆ Toki Works

We conducted a tour of the Toki Works in March, and we had 91 participants from 29 families.

This was the first year in which we held a tour, and we gave briefings regarding the Toki Works and its products, and introduced major events that took place at the works since it opened six months earlier. We then let the participants freely take a look at the Technical Center, Exhibition Hall, and Administration Building.

Focusing on the health of our employees

The Amada Group plans various events to promote the health of employees.

◆ 600,000-step walking

Twice a year, the Amada Group holds an event called the "600,000-step Walking Challenge" (lasting 2 months). We encourage the participation of employees by presenting those who have walked 600,000 steps with health-related goods and commemorative gifts related to physical exercise.

◆ Toki Walking Challenge

The Toki Works held the "Toki Walking Challenge" as a way to raise interest in improving health among employees.

We set the guard gate of the Toki Works as the starting point, and gave participants one point for each lap they made around the outside of the works (about 1.7 km). Participants who amassed 20 points were presented with a commemorative gift. Even though the challenge was held during the cold months of December through March, many employees could be seen walking around the outside of the works before starting work or during their break times.

◆ Interviews with industrial doctors and group training

The Amada Group provides interviews with industrial doctors to employees who have been working overtime. We give these interviews to employees who have worked 80 hours or more of overtime per month—a stricter standard than the "100 hours or more of overtime" as established under the law—and we thus aim to thoroughly manage the health of our employees.

We also support both the physical and mental health of our employees through activities such as the holding of mental health seminars led by industrial doctors.

Tour for family members

An exciting tour from start to finish

Mr. Morihide Torikawa,

PROCESSING SOFTWARE DEVELOPMENT DEPT.
Amada Machine Tools Co., Ltd.
(Participant in tour of Toki Works)

I brought along my wife and son to participate in the tour. My son was surprisingly excited, saying, "I want to see your company, Dad!"

My family was first of all moved at the sight of the impressive company premises, and they were amazed to see ceramics incorporated in the walls and room plaques. During the tour of the Exhibition Hall, my son was very interested in the movements of the machines. He was the most taken by the robots there, and closely watched as the arms carried parts. My wife expressed her interest, saying, "Oh, so these are the kinds of machines that you make." My family enjoyed the tour of the works, and eagerly took a look at everything from the kitchen to the shoe lockers. My son appeared to be satisfied with the experience and commented: "Now I know what you do at work, Dad."

The one disappointing aspect for my wife though was the fact that we had a lunchbox for lunch. Next time I hope that we can eat from the menu at the employee cafeteria.

Environment Salon

In order for everyone in the Amada Group to participate in a wide-range of environmental activities, each employee needs to boost their awareness regarding the environment. We thus opened the Environment e-Salon and Environment Salon at Isehara Works for the purpose of raising awareness and boosting the level of basic knowledge regarding the environment for employees.

The Environment e-Salon offers environmental education that is “affirmation-based” in which employees take a comfortable and easy-to-follow approach to acquiring basic knowledge regarding the environment through e-learning, and then build their understanding with quizzes.

The Environment Salon provides environmental education that is “experience-based” in which employees acquire knowledge about topics that are difficult to understand through e-learning. This approach involves hand-on experiences in which employees see and touch actual samples and other objects.

Encouraging employees to take the Eco Proficiency Test

At the Fujinomiya Works, we have been carrying out activities that are aimed at encouraging employees to take the Eco Proficiency Test, as a way of developing our human resources based on the “Amada Group Environmental Declaration.” In fiscal 2011, altogether 80 employees passed the test, thus raising the total number of employees who have passed the test at all our works to 140. We initially set a goal of having 10% or more of our employees pass the test within the next three years, but we achieved this in a year and a half.

Going forward, we will continue with activities to encourage employees to take the test, with the goal of having 20% of our employees pass the test.

Three “Dojo,” places for education at Fujinomiya

We have set up places for the education of employees at the Fujinomiya Works named the “Quality Dojo,” “Safety Dojo,” and “Environment Dojo.”

◆ Quality Dojo

We opened the Quality Dojo as a place for routine education and training sessions aimed at boosting elemental skills and inspection and judgment capabilities with the goal of “enhancing the quality of human resources,” which is one of our policies for improving quality. At the training hall, we are working to foster employees with “eyes that see, notice, of neglect associated with basic operations, with the objective of “properly developing and perceive new ideas” based on building their experience related to defects that occur as a result the practical tasks that serve as fundamental operations.”

◆ Safety Dojo

Each year at our manufacturing sites there are several cases of accidents and worker injuries, and we launched the Safety Dojo because we saw that there is a need for a place for training regarding safety. The Safety Dojo is operated with the objective of developing each of our employees into “safety people,” in other words, people who “have in-depth knowledge about our safety rules,” “have the ability to foresee dangers,” and “can safely fix abnormalities.”

◆ Environment Dojo

Our Environment Dojo is based on the concept of “having fun while learning about the environment,” and it is thus aimed at increasing employees’ knowledge regarding the environment in an enjoyable way. The Dojo is divided based on about 10 topics: “introduction of ECO PRODUCTS,” “introduction of environmental activities by departments,” “introduction of separating resources,” etc. We provide materials, display objects, exhibition areas, and so forth for each topic. We have established a rule that before employees leave the Dojo, they must make an “eco declaration” in which they promise to carry out eco-friendly activities.

Environment Dojo at Fujinomiya Works

Environment Salon at Isehara Works

Employees can compare differences in illumination intensity between florescent lamps and LED.

Safety Dojo at Fujinomiya Works
An employee checks his appearance in front of a mirror. “Ready to go!”

Preventing the spillage of waste oil and training for emergencies

At the Ono Plant, we implement training for emergencies, such as when a container holding waste oil has been tipped over and the oil has spilled out.

The training is focused mainly on employees who engage in the operation of transporting oil such as waste oil, and in fiscal 2011, 103 employees received the training.

We put colored water in a polyurethane tank in order to simulate waste oil, and carried out training so that employees are able to swiftly and efficiently respond to spills.

Receiving the "Chairman's Commendation" from Shizuoka Prefecture Association for the Safe Handling of Hazardous Materials

At all the works of the Amada Group, there are stockpiles of so-called "hazardous materials." As such, we have stationed employees at each works who are certified as "handlers of hazardous materials" and possess specialized knowledge regarding the qualities of hazardous materials, relevant laws and regulations, methods for extinguishing fires, and so on. These handlers constantly monitor whether hazardous materials are being used and stored properly, and they also work to prevent fire accidents.

Last year, the "handlers of hazardous materials" at the Fujinomiya Works received the "Chairman's Commendation" from Shizuoka Prefecture Association for the Safe Handling of Hazardous Materials in recognition of their "diligent and exemplary work that has resulted in a record of zero accidents over more than 10 years and ongoing work related to the handling of hazardous materials."

Fire extinguishing competition

Employees from the Isehara Works and Fujinomiya Works participate in local fire extinguishing competitions each year. The participants must complete operations within a set amount of time, and they compete with regard to accuracy, safety, and discipline.

At Isehara, the competition was held on October 19, 2011. Two teams entered from Isehara Works that consisted of employees selected from among members of the self-protection organizations. Both teams put to use their practical experience with regard to evacuation drills—which they conduct each year—and indoor fire hydrant operation methods, and as a result, the second fire-fighting crew won the first place prize and the first fire-fighting crew won the third place prize.

At Fujinomiya, the 20th fire fighting competition was held on September 22, 2011 (hosted by the Fujinomiya City Association for Fire Prevention and Safety). Two men's teams and one women's team entered from Fujinomiya Works. Even with the skill level at the competition rising each year and it becoming increasingly difficult to win a prize, one of the men's teams won the fighting-spirit award in the fire extinguisher category, and the women's team was awarded the third place prize in the fire hydrant category.

Employee association news

Communication through softball

Each autumn, a softball tournament is held at the Fujinomiya Works hosted by the employee association.

In fiscal 2011, the tournament took place in October, and a total of 366 people, consisting of employees and their family members, were divided into 12 teams in order to compete for the top prize.

Employees wearing full-body stuffed doll type suits loosened up their bodies with radio calisthenics before starting the competition, and during the games, children cheered on their fathers. After the games, a lottery was held, cosponsored by the labor union, and it was a good day for promoting communication among employees.

Participants in a fire fighting competition from Isehara Works

Participants in a fire fighting competition from Fujinomiya Works

Initiatives for disaster prevention

In response to the Great East Japan Earthquake that occurred on March 11, 2011, the Amada Group has reaffirmed the importance of day-to-day initiatives for the prevention of fires, and we are implementing training based on this.

◆ Implementation of large-scale firefighting training at Isehara

We carried out general fire prevention training at the Isehara Works based on collaboration between Amada, the Isehara Fire Department, and a local Isehara firefighting group.

The training was aimed at verifying the effectiveness of "standards for initial actions in response to the occurrence of a large earthquake" that have been newly formulated. We also carried out the training so that members of the Amada fire defense organization (main team and sectional teams)—which was reorganized in response to the revision of the Fire Defense Law—would be aware of their roles.

The training consisted of training on initial actions for responding to the occurrence of an earthquake (primary actions and secondary actions) and training on extinguishing fires, transporting injured persons, and conducting rescues. Employees who have been appointed to the fire defense organization affirmed the actions that they might need to perform in times of emergencies and practiced these actions, including extinguishing fires that have started, transporting injured persons, calling ambulance (119), doing roll calls, and issuing reports.

The employees also conducted training at actual fire disaster sites in collaboration with the Isehara Fire Department and a local Isehara firefighting group, including training on spraying water, rescuing people with ladder trucks, setting up first-aid tents, and triage.

◆ Disaster Prevention Week at Fujinomiya

We carried out various activities during Disaster Prevention Week* at the Fujinomiya Works.

Officers of the fire prevention headquarters used a step-by-step approach in order to implement fire control and prevention patrols, inspections of food supply and equipment, and training on extinguishing fires and carrying out rescues. Also, a special lecture meeting was held in order to increase awareness regarding fire prevention.

Professors from FUJI TOKOHA UNIVERSITY were invited to give lectures, and talks were provided on topics including risks associated with earthquake disasters, examples of business continuity plans (BCP) related to the Great East Japan Earthquake, and responses to earthquake disasters by individual households. On the last day, the employees at all of the works carried out general disaster prevention training, and we raised their awareness with regard to disaster prevention.

◆ Fire prevention training and disaster prevention training at Ono

In December, we implemented fire prevention training and disaster prevention training. There were 103 participants in the fire prevention training. After hearing explanations regarding how to handle fire extinguishers and relevant precautions, etc., the participants gained experience with actually using fire extinguishers on oil in an oil pan that was lit on fire.

The disaster prevention training was carried out based on the simulation of an earthquake disaster. At the employee parking lot, which is the evacuation area for the Ono Plant, the leaders of each group conducted training on performing roll calls and simultaneously transporting injured persons on stretchers.

◆ Support for employees affected by the Great East Japan Earthquake

The Amada Group provided support to employees who were affected by the Great East Japan Earthquake. This support took the form of supplies such as food items and basic necessities, condolence payments, and loans to cover daily living expenses.

The day after the earthquake disaster, we set up an "Amada Group emergency contact website" as a means for employees to exchange information. On the website, we posted our standards for actions in response to the occurrence of a large earthquake and our schedule for rolling blackouts. We also used the site to provide employees with the latest information on changes to work hours accompanying the blackouts.

Rescue training at Isehara Works

Transporting an injured person at Fujinomiya Works

Fire prevention training at Ono Plant

* Disaster Prevention Week in 2011 took place from August 29 to September 4 centered around Disaster Prevention Day on September 1.

Personnel system

The Amada Group implements a stable salary upgrade system for young and mid-career employees.

We also have an assessment system for employees who have been newly appointed to management positions such as group leaders and managers, in which randomly picked bosses, junior staff members, and colleagues assess them “from 360 degrees”. This allows us to make fair and appropriate promotions.

Diversified employment system

At Amada, we have a reemployment system for senior employees based on employee evaluation during the two years before retirement (at age 60). The reemployed employees will work to pass on the experience and knowhow that they have accumulated during their employment to their junior associates, and to serve as role models for the younger generation.

We also have a “permanent staff appointment system” for appointing nonpermanent employees to a permanent status.

As for permanent employees, there are a variety of employment patterns available such as “special area” and “limited assignment” type permanent positions.

Employment of persons with disabilities

The Amada Group proactively hires persons with disabilities. Amada Co.’s ratio of hiring persons with disabilities has been rising year-on-year over the past five years.

The ratio of hiring persons with disabilities stood at 1.57% in fiscal 2006, and it has risen to 1.8% in fiscal 2011.

The Amada Group as a whole is still at a low ratio level, but going forward the entire group will proactively move forward with employing persons with disabilities.

Fostering global human resources

The Amada Group is fostering human resources as one of its initiatives aimed at fulfilling its priority strategy of “achieving the acceleration of ‘shift global.’”

The Amada Group holds TOEIC examinations twice a year, and we have a system in which we cover English education expenses for employees who get scores in the middle range (460 to 660 points). This initiative is aimed at boosting the level of English skills at the company.

We provide development engineers who have been at the company for two to three years with training overseas.

The number of foreign employees at the Amada Group in Japan has been growing each year, and these employees are active in many fields.

Rewarding work for a global employee

Putting to use knowledge and language skills acquired in Japan

I came to Japan 10 years ago and majored in political economy at my university. When I was a third-year student, I did an internship at Amada, and learned about the sheet metal processing machine manufacturer Global Amada. I joined Amada because I wanted to put to use the knowledge and language skills that I had acquired in Japan. After receiving about one year of training, I was assigned to the Bending Sales Department. When I first heard that I would be placed in this department, I was unsure about whether I could handle the job because everyone else there was Japanese, but once I got started, the senior employees treated me just like everyone else, and they took a very courteous approach to teaching me how to carry out my work.

Besides working activities, I was invited to go climbing in the mountains, to barbecue parties and festivals in town. It took me less than six months to feel at ease with everything and everyone. All feelings of uncertainty had disappeared from my mind.

Ms. Reikin Ryu
BENDING MACHINERY SALES DEPT.
Amada Co., Ltd.

Currently my main jobs include preparing sales materials and so on for bending, attending to customers at exhibitions (customers from Japan, China, Taiwan, Singapore, etc.), responding to requests and inquiries from worksites, and analyzing the bending market in China. Last year during a private show by Amada that took place in Shanghai, I gave a presentation at a bending seminar, and I engaged in public relations with customers in China regarding the fact that even women can easily work as bending machine. Now in my fourth year at the company, I am given plenty of work regardless of my nationality and gender, and I am able to put to use my unique skills and traits.

I thus feel that my work is very enjoyable and rewarding.

Nurturing the next generation

As initiatives for supporting nurturing of the next generation, we have various “special leaves” such as “maternity leave” and “parents’ day leave”. With the “maternity leave,” in addition to the traditional number of days allowed, employees can add a maximum of 40 expired annual paid leaves, thus allowing them to take more than the legally prescribed number of leaves (provided that the total of unused paid leaves is equal or superior to 40 days). For “parents’ day leaves,” employees with children under 15 (in compulsory education) can take 2 days off from work per year (4 days for those with multiple children) for participating in school events. These special leaves provide the employees a better parenting environment.

We also provide monthly allowances for permanent employees (except those in executive positions) with children under 18. In addition, the employees receive a celebratory allowance from the “Employees Association” when their children enroll in elementary school, junior high school, and high school, thus showing Amada’s commitment on nurturing the next generation.

Other leaves

In addition to child-related leaves, Amada has many leaves for improving the employees’ work- life balance.

The “refresh leave” is granted to employees with 10, 20, or 30 years of continued service, according to their years of service. A “family-care leave” can be taken up to 93 days, and the employees can now extend the leave by adding a maximum of 40 expired paid leaves. We also have short-hour work system for employees who need to take time for nursing care and childrearing, thus making the work environment as employee-friendly as possible.

Childcare leave

Seeking a life with a good balance between work and family…

Ms. BAO YUNFEI
CHINA BUSINESS PROMOTION DEPT.
Amada Co., Ltd.

I took maternity leave starting in October 2011 and returned to my workplace on June 1 this year. It is common to take a one-year childcare leave, but I was able to return to work in nine months with the help of support and understanding from my family. I have been steadily advancing my career, and have tried to keep my free periods to a minimum. I have returned to work, but I am on a reduced working schedule, so I have time to transport my children to and from school, which makes things much easier. There are difficult aspects to balancing work and childrearing, but I always think positively about being able to grow as a mother together with my children. I am always figuring out ways to solve various problems by consulting with the people around me when I am having problems, and I am thus seeking a life with a good balance between work and family.

Visiting day leave

I’ll carry on visiting my children until asked not to…

Mr. Hiroyuki Tomiyama
TOOLING BUSINESS PLANNING DEPT.
Amada Tool Precision Co., Ltd.

In my family, I have two sons, one in kindergarten and one in elementary school. I place a great deal of value on the time that I spend with my family, so the company’s system of providing holidays for visiting children is perfect for me, and I use it in order to attend school entrance ceremonies, field days, and school visiting days.

This system gives me the opportunity to watch as my children grow up in kindergarten and elementary schools. When I visit them at school, they are excited to see me and have trouble settling down. I get to see the triumphant looks on their faces after they have given a presentation or demonstrated an act of bravery that I am never able to observe at home. I also snap photos of mothers who are moved to tears.

I am grateful to work at a company that has established this type of system and provides a working environment in which it is easy for me to take holidays. I intend to continue visiting my children at school until they tell me, “Dad, please don’t come!”

Independent opinion

Yo Takiguchi
Doctor of Engineering (specializing in sustainability management)
Professor, Shoin University Graduate School

20 years have passed since the UN Conference on Environment and Development was held in 1992, at which countries shared an awareness of sustainable development. In June this year, the United Nations Conference on Sustainable Development (Rio+20) was held in Rio de Janeiro, Brazil. The most significant outcome of this year's conference was probably the decision to move toward a so-called "green economy" in which growth is achieved while reducing the consumption of resources and preserving the environment. Some see a green economy as a means for the achievement of sustainable development.

Sustainable development is one of the most important topics for humanity in terms of the global environment, and over the past 20 years, many Japanese companies have been implementing sustainability management in order to achieve this. These companies are constantly pursuing sustainability and have already produced significant results.

The Amada Group sought my opinion as a third party with regard to its report concerning the environment and society: "Forest-In Office Amada Green Action." I read the report, carried out an onsite inspection at the Group's Isehara Works, and conducted a question and answer session with relevant personnel. I affirmed the following points:

(1) The Group is carrying out sustainability management, and is significantly contributing to the realization of sustainable development. The report includes the Group's Management Philosophy on page 5 ("taking good care of people and the earth's environment") and its environmental policy. I affirmed that the Group has planned initiatives related to the environment based on these, is implementing the initiatives in accordance with targets and objectives that it has established, and is producing results.

(2) The Group's business includes the manufacture and sale of metal processing machines and equipment, and the Group has set up an Amada Solution Center within the Isehara Works. The purposes of this center include exchanging information with customers in order to resolve customer-related issues, holding discussions, and carrying out demonstrational processing using the Group's products. This method is the fastest approach to resolving problems. In addition to the time factor, this system has outstanding environmental efficiency because it enables problems to be resolved with a minimal impact on the environment and the minimal consumption of resources.

(3) The Group sufficiently carries out indoor greening, and the Center is filled with beautiful designs. Upon seeing the operation of each product, I affirmed that the Group is paying close attention to environmental friendliness. Its main products are covered below.

- Laser machine (FO-MⅡ NT Series): This machine is extremely effective in saving resources as a result of significantly reducing the ratio of defective products, based on clean cuts, nozzle changes, etc. This machine can also be operated while unattended.
- The Group uses a selenium-coating lens with this machine, and we affirmed that the Group makes sure that employees are able to perform their work without ever directly touching this lens, which is harmful to the human body.
- The Group paid attention to reducing the machine's consumption of electric power when it is on standby, and it thus qualifies as an energy-saving device.
- Fiber laser welding machine (FLW Series): A robot saves power, and metal parts can be welded directly to each other. As a result, it is possible to weld without solder, making the RoHS Restriction of Hazardous Substances Directive I irrelevant.
- Press machine (SDE Series): This machine uses a servo motor to reduce power consumption to one-fifth of its original level, and additional innovations enable a further reduction of 10%. This machine saves energy, operates at a low noise level, and saves resources—since lubrication oil can be used continuously for one year.
- Cutting machine (PCSAW Series): This machine saves resources by pulse cutting metal columns of up to 800 mm with thin, long-lasting saw teeth, and I affirmed that this machine is good for saving energy because it is able to reduce cutting resistance.

Looking at the lens of the laser machine that is covered with selenium coating

Checking metals that are directly attached to each other without solder through fiber welding

Observing how the power consumption of the press machine is reduced through the use of a servo motor and the fact that lubrication oil can be used continuously for one year

Affirming how the cutting machine saves resources with pulse cutting and how it saves energy by reducing cutting resistance

(4) The Group implements life-cycle assessments regarding its products, and carries out its operations while giving the utmost attention to volumes of CO_2 emissions, not only at stages of production, but also stages of use by customers. The Group has declared that it will reduce its CO_2 emissions by 25% by 2020. (Amada Group Environmental Declaration). This is one of the most appropriate policies in terms of sustainability management for the global environment (environment period). I expect that the Group will continue to further enhance its track record in the future.

(5) The Group is not only enthusiastically conducting sustainability management, it is also very passionate about the "greening" of its works. Isehara Works that I visited was covered in green. Trees there had grown large to make forests, and the site could be compared to a large park. In such an atmosphere, the employees must gain a strong interest in nature and the environment.

(6) Apparently at another works, there is a more densely grown forest (Amada Forest). Forests are important as sinks for absorbing CO_2 that has been emitted, and a declaration regarding forests was made at the United Nations Conference on Environment and Development in 1992. The Group has been moving forward with forest development based on a standpoint of biodiversity, but in its report, there is no mention of the types of species that live in its forests. Nevertheless, when I did an onsite inspection, I checked the results of a detailed survey that the Group conducted in four parts during the changing seasons from November 2010 through June 2011 with regard to the plants and animals (mammals, birds, reptiles, amphibians, inspects, snails, and benthic animals) in the Amada Forest (Fujinomiya Works).

(7) The Technical Center (Toki Works) mentioned in Special Feature (1) has been designed and planned so that it can be operated using only natural energy sources (solar and thermal energy), and it thus emits zero CO_2. It was completed in November 2011. This facility is ideal for conserving the global environment. It has now been in operation for one year, and there are some concerns regarding seasonal changes, the effects of weather, etc. I will be awaiting the release of a related energy report in the next fiscal year.

(8) As for new Amada ECO PRODUCTS that were covered in Special Feature (2), products with outstanding performance have been introduced. These introductions would probably be easier to understand if there were accompanied by explanations of why eco-friendliness is Important.

(9) The definition of a zero emission factory is easy to understand, but the Fujinomiya Works is apparently also significantly reducing energy consumption, CO_2 emissions, and VOC emissions. In terms of environmental friendliness, operating a clean factory is a wonderful thing, and if these other elements were also mentioned in the definition, it would be easier for readers to understand this achievement.

(10) As for material balances, the figures for resources, energy inputs, and energy outputs related to the Group's business are shown. These figures are extremely important in terms of sustainability management, and if the comparisons with the previous year were shown clearly, their significance would be easier to understand. These figures are affected by production volumes, so it may be worth considering also introducing environmental efficiency.

(11) The expenses and investment amounts related to the environment are shown in the environmental accounting, so it is possible to make comparisons with the previous year. It appears that proceeds from disposals of valuable waste materials are included in economic effects, and it seems that it would be possible to also interpret the energy costs that have been reduced as a result of investments in energy saving, etc. as economic effects. Physical effects (amount of reduction in the volume of emissions of CO_2 and other waste materials) are also shown.

(12) At the Parts Center, various parts are set out for maintenance while machines that have been delivered to customers are operated. This is said to contribute to increasing the lifespan of products, and it is expected to have the effect of reducing the amount of waste materials that are generated. As such, this is very valuable in terms of sustainability management. The Group communicates with customers regarding the relevant details.

(13) In the Group's report, many of the sections cover communication. Aside from the communication mentioned in the preceding item, it is clear that the Group is putting a great deal of effort into communication with local communities and communication among employees. This appears to serve as a basis for promoting sustainability management. Going forward such efforts will be necessary, and likely essential.

The Group has prepared its report concerning the environment and society referring to the Environmental Accounting Guidelines 2007 (Ministry of the Environment). According to these guidelines, opinions from a third party should be shown, which assess the information printed in the environmental report and offer recommendations, etc. My assessments and recommendations regarding this report are included in the 13 items listed above.

The Group has implemented proactive environmental management based on a strategy that is suited for preserving the global environment, and I was impressed by the Group's high degree of confidence. This confidence can be seen in the fact that the Group requested a third party for an opinion, and thus revealed worksites—which can be considered the heart of the Group—to the third party and proactively disclosed various reports as requested. This is not something that other companies in the industry are doing.

As I mentioned at the beginning, sustainable development is the most important element of preserving the global environment. Sustainability management, environment and corporate responsibility reports, and continuing to seek opinions from a third party are also valuable. By building up a track record with regard to these elements, it seems that the Group will be able to steadily move closer to achieving the goal of "sustainable development."

AMADA CO., LTD.
Environment / CSR Promotion Group, General Affairs Department
200, Ishida, Isehara - shi, Kanagawa, 259-1196, Japan
Phone: 0463-96-3404　FAX：0463-96-3517
E-mail：env_csr@amada.co.jp
URL：www.amada.co.jp