

Contribute to
culture and industry
through creativity



TDK CSR REPORT 2012

English version

Vision
Courage
Trust

A collection of white silhouettes on a blue sky background. It includes a large tree on the left, a family of three (a woman, a child, and a man) in the middle, a car below them, a wind turbine on the right, and a city skyline at the bottom. There are also smaller icons like a smartphone, a laptop, and a leaf.

Top Commitment

TDK's new medium-term plan, which started in 2012, states that our basic policy is to "sharpen TDK's core technologies and contribute to the evolution of new social infrastructures." In this plan, we identify the next-generation information and communications market and the energy related market as our top-priority markets. As an electronic components manufacturer, we believe that TDK can display its strengths in a wide range of fields that can be expected to grow in the future, such as cloud computing, smart grids, and environmentally friendly vehicles. In the field of magnetics, which is one of our strengths, we have identified 2012 as "year one of the magnet renaissance" and will put even greater effort into this sector with the aim of developing a magnet that does not use rare earth elements. We will also continue to constantly challenge new business fields and, through the solution of social issues, contribute to the realization of a sustainable society.

Creating entirely new things of value by starting at the fundamental level of the materials—While inheriting this creative spirit as our DNA, unchanged since our founding, TDK has constantly pursued the creation of products that meet the needs of society, in other words, exceptional craftsmanship from the standpoint of the customer. As one attempt to show our respect for and inherit TDK's spirit of exceptional craftsmanship, since 2010, we have been holding

the TDK Monozukuri Tradition Seminars. The aims of these seminars are to provide an understanding of the role and mission of "mother factories" in ensuring survival in this age of global competition and training next-generation leaders who are capable of building a consistent backbone of exceptional craftsmanship. Participants learn about such themes as consistent processes of manufacturing from materials to products and the incorporation of quality assurance in the manufacturing process itself, rather than relying on quality inspections, and they, themselves, give guidance to front-line workers. From the point of view of strengthening our competitiveness, we believe that it is essential to share this spirit of craftsmanship throughout the Group so as to efficiently create products that satisfy the customer and to differentiate ourselves.

Under the environmental vision, the "TDK Environmental Action 2020", announced in 2011, TDK is making a progress steadily toward the achievement of carbon neutrality, which is the first attempt in the electronic components industry. The goal for this initiative is that the emissions of CO₂ in the production activities of the TDK Group will be cancelled out by contributions made to the decrease of CO₂ emissions by using TDK products by FY2021. In addition, through an industrial organization, we are promoting the realization of the environmental contributions of electronic components. Our

desire is to clarify the environmental contributions of electronic components by standardizing the criteria.

Furthermore, in order to respond to changes in the demands and expectations of society, in the fall of 2011, we revised the TDK Code of Conduct, which is a guideline for TDK's behavior as a company. The revised guideline proclaims, "TDK will fulfill its responsibility to society based on a strong sense of ethics in order to promote sustainability, and will conscientiously promote corporate ethics and CSR throughout its supply chain, which includes suppliers and clients." It also states, "Through the practice of our corporate motto, which holds values that should be shared by every individual employee in the TDK Group, the Company emphasizes solidifying the unity of the group as a whole and endeavoring to further enhance our values." From now on, we intend to disseminate this new Code of Conduct even more deeply among our employees.

One of the characteristics of TDK is its respect for the individuality of employees. I want our employees, who will take the lead in the future, to have vision and to continue courageously making advances without fear of failure and never giving up hope. It is the accumulation of such efforts that will gain the trust of stakeholders and in turn cultivate trust in TDK as a whole.

This report introduces some of the advancements we have been making. Please read it and send us your comments.



**Inheriting the spirit of creativity
continued since our founding,
TDK will contribute to the solution
of social problems through exceptional
craftsmanship.
We will continue making advances
toward our goal.**

Takehiro Kamigama, President and CEO, TDK Corporation

A handwritten signature in black ink, appearing to be 'TK' with a stylized flourish.

TDK CSR REPORT 2012

■ Company Profile

Name : TDK Corporation
 Headquarters : 1-13-1 Nihonbashi, Chuo-ku, Tokyo, Japan
 Established : December 7, 1935
 Capital : ¥32,641,976,312 (as of March 2012)

■ Editorial Policy

This report has been compiled with the purpose of giving stakeholders an understanding of the TDK Group's CSR (corporate social responsibility) activities.

In the first half, as the TDK Group's CSR, we outlined the role that TDK seeks to fulfill as our basic management philosophy and introduced the spread of TDK's spirit, which has continued since our founding to the present, as well as the meaning of "vision, courage, and trust" for TDK employees around the world.

In the second half, we introduced topics and achievements relating to our Key CSR Action Items.

Highlight 1, "Contribution to the world by technology," introduces a roundtable discussion by young TDK members talking about how TDK will be contributing to the solutions of social issues and the building of society in the year 2020.

Highlight 2, "Development of human resources," introduces the transmission of TDK's spirit of exceptional craftsmanship to the next generation.

Highlight 3, "Society and environmental considerations in the supply chain," introduces TDK's response to CSR procurement as a midstream company—that is, from its position as both a supplier, accepting the requests of customers, and a buyer, requesting the cooperation of business partners.

Highlight 4, "Symbiosis with the global environment," introduces the TDK Group's problem-solving initiative through the power capacitor business amid the diffusion of renewable energy.

| Report Format

The report is available as a booklet and a collection of web site pages, in slightly different format to match the requirements of the respective media.

Booklet: A digest version introducing our Key CSR Action Items.

Web site: Compiled with reference to the Global Reporting Initiative (GRI) guidelines including comprehensive information centered on fiscal 2012 activity reports as well as detailed data.

(Scheduled to be available in September 2012)

| Period Covered

FY2012 (April 1, 2011 – March 31, 2012)

Some information covers activities outside this period.

| Organizations Covered

TDK Group*

*TDK Group: TDK Corporation and 125 consolidated subsidiaries in Japan and overseas

| Major Organizational Changes during the Covered Period

None

| Date of the Report's Issue

September 2012

(Last issue: September 2011; next issue: September 2013 [scheduled])

| Contact

CSR Promotion Office: +81-3-5201-7115

| Cover Page Design

Based on a rainbow motif, the cover design shows diverse human resources brimming with originality and implementing TDK's Corporate Motto by performing in harmony. The rainbow image is repeated on pages inside the booklet as well, expressing a society of dreams created by TDK.

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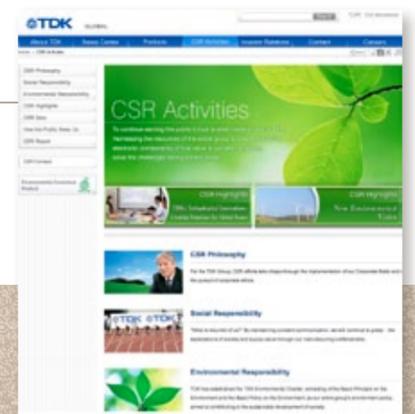
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CSR Activities Web Information

The Web version carries comprehensive information centered on fiscal 2012 activity reports, as well as detailed data. (Scheduled to be available in September 2012)
 Note: The screen photo shows the fiscal 2011 issue.



- CSR Philosophy
- Social Responsibility
- Environmental Responsibility
- CSR Highlights
- How the Public Sees Us
- CSR Data

<http://www.global.tdk.com/csr/>

The TDK Group's CSR

With the aim of building a company that continues to be trusted by society, all employees in their daily activities are implementing the corporate motto and ensuring corporate ethics.

■ Corporate Philosophy

Corporate Motto

Contribute to culture and industry through creativity

Corporate Principles

Vision

Always take a new step forward with a vision in mind. Creation and construction are not born without vision.

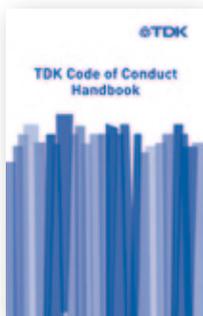
Courage

Always perform with courage. Performing power is born by confronting contradiction and overcoming it.

Trust

Always try to build trust. Trust is born from a spirit of honesty and service.

■ The TDK Code of Conduct : The TDK Group's Standards and Guidelines



TDK Code of Conduct specifically provides the standards and guidelines for compliance with all laws, regulations, and social norms.

By pursuing creativity and consistently providing products and services that create new value, we offer satisfaction and dependability to our customers and all of our stakeholders. With their support, we also contribute to the development

of a sustainable society by helping to resolve social issues. For this purpose, the members of the TDK Group will

autonomously practice the following action guidelines in the course of their daily work:

1. TDK members shall respect the character and individuality of each employee and pay heed to values and opinions that differ from those of the TDK Group.
2. TDK members shall always be aware of wider issues and pursue the true facts of any situation.
3. TDK members shall be active, courageous, and tenacious in efforts to resolve social issues.
4. TDK members shall pursue work creatively as members of a manufacturing company.

The magnetic material ferrite was invented in Japan in 1930 by Dr. Yogoro Kato and Dr. Takeshi Takei of the Tokyo Institute of Technology. "True Japanese industry was born of innovative vision," this statement by Dr. Kato inspired Kenzo Saito to found the TDK Corporation in 1935 with the purpose of marketing this original material invented in Japan.

Prior to the founding of TDK, Kenzo Saito tried various businesses, failing many times in his effort to realize his dream to improve things in an impoverished farming town in Akita, Japan where he was born. An angora fur business was one of Saito's many early endeavors. However, this business did not go smoothly and he was unable to find any customers. Winter is especially harsh in Akita and the local people were forced to live a hard existence. Determined to



The fur of the angora rabbit is used in luxury wool and fur products.



Shingo Tsuda, president of the Kanegafuchi Spinning Company



Kenzo Saito, TDK's first president

find a way to help the people of his hometown, Saito grabbed a few angora fur samples and jumped on the night train to Tokyo. He wanted to meet directly with the President of the Kanegafuchi Spinning Company, which was a leading business in the textile industry. Despite having no prior appointment, he was granted three minutes with company President Shingo Tsuda. Saito gave an impassioned explanation regarding the merits of angora fur. Tsuda became so interested that he accepted Saito's business proposal, pledging additional funds for the business. In the end, the angora fur business ✓

The Spirit of the Company's Founding Expressed in TDK's Philosophy

failed. However, Tsuda was greatly impressed by Saito's passion for and commitment to his ideals.

At the time of TDK's founding, it was unclear whether ferrite would have a future, so the foundation demanded "courage" and the will to pursue a "vision." Despite the tough economic times, Tsuda would provide a large amount of money to help Saito start TDK because he believed in Saito's entrepreneurial capabilities. In time, as a result of joint research by the Tokyo Institute of Technology and TDK, a product called a "ferrite core" was produced and applied for the first time worldwide in 1937 in a number of Japanese wireless communication units and radios. By the end of the war, as many as 5 million units had been shipped by TDK, thereby gaining the "trust" of the society.

"The spirit of creating entirely new things of value by starting at the fundamental level of the materials" has defined TDK from the beginning, and this belief is still the trait that sets TDK apart. It is also reflected in the Corporate Motto formulated in June

1967, "Contribute to culture and industry through creativity."

If not for the meeting between Tsuda and Saito, through Saito's angora fur business, today's TDK would not exist. Saito later recalled, "A person can make their business into a success by working with a strong sense of social values and with the dedication to never give up no matter what obstacles they may face."



(from left) Dr. Yogoro Kato and Dr. Takeshi Takei



Japanese-developed magnetic material ferrite

Live with company for success



 TDK (Malaysia) Sdn. Bhd.
Accounting and Corporate Planning Team, Nilai



 TDK Corporation of America
Volunteers from the company, Chicago

Believe in new ideas



 SAE Magnetics (H.K.) Ltd.
Manufacturing Team, Hong Kong

Build mutual-trust relationships with honesty and integrity

Create trust with the colleagues through teamwork, ethics, respect, and responsibility

Vision

"What vision do you want to realize through work?"

What Our Employees Think

"What do 'vision, courage, and trust' mean for you?"

Members of the TDK Group are active around the world. Countries and regions may be different, but the attitudes and direction ahead for the group as a whole expressed in our Corporate Motto and Corporate Principles are shared throughout the world. Here members working in various countries introduce their, "vision, courage, and trust" in their own words.

Trust

"How do you endeavor to build relations of trust in the workplace and in society?"



 EPCOS do Brasil Ltda.
Quality Management Team, Sao Paulo



 TDK Corporation, Kofu plant
HR&GA and Accounting Team

Become No.1 in the world in complex technologies born through collaboration

Courage

"What kind of society do you want to create by continuing to work with courage?"

Surpass the limits and be innovative



 Amperex Technology Limited
IT and HR Team, Hong Kong



 EPCOS AG
Manufacturing Team, Heidenheim

Open up new markets and keep our leading position with data line chokes in Europe



 EPCOS India Private Ltd.
R&D and Technical Support Team, Nashik

Pave the way for sustainable development through conservation, energy security, and equality in a world with shrinking resources and a growing population

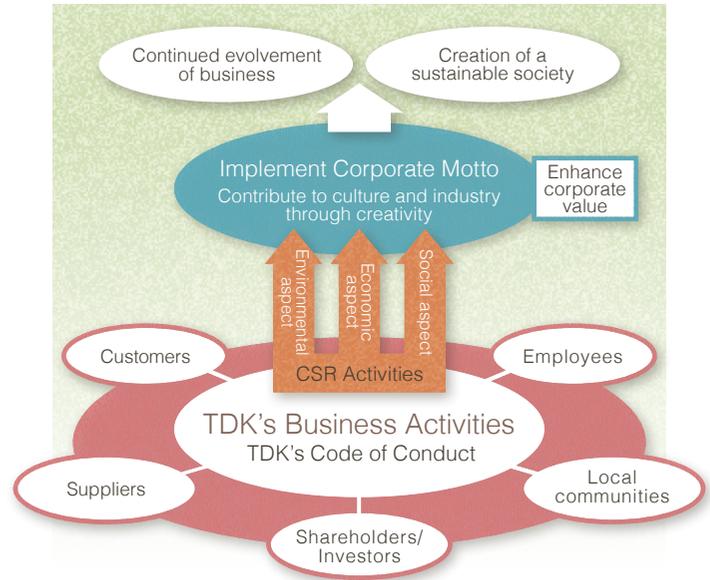
The TDK Group's Approach to CSR

CSR activities are promoted by defining and implementing Key CSR Action Items based on the TDK Corporate Motto to ensure corporate ethics.

TDK Group's CSR and the Corporate Code of Conduct

The TDK Group's approach to CSR is based on the TDK Corporate Motto to ensure corporate ethics. This means that CSR activities are promoted through business activities based on the TDK Code of Conduct* and are always maintained through the proper channels of communication with our stakeholders while recognizing the fact that the company's continued success is supported by our customers, suppliers, employees, shareholders and investors, local communities, and other stakeholders. By putting our Corporate Motto into practice, our corporate value increases, and this contributes both to the "Continued evolvement of business" and the "Creation of a sustainable society."

* For the complete text of the TDK Code of Conduct, please refer to the following URL:
http://www.global.tdk.com/about_tdk/code_of_conduct/



Key CSR Action Items

The four action items shown to the right have been identified by the TDK Group as especially important due to their impact on society at large and the company.

1. Contribution to the world by technology
2. Development of human resources
3. Society and environmental considerations in the supply chain
4. Symbiosis with the global environment

CSR Promotion Structure

The CSR activities of the TDK Group are conducted under the guidance of the Business Ethics & CSR Committee and its subordinate organization, the CSR Task Force.

Business Ethics & CSR Committee

The Business Ethics & CSR Committee reports directly to the Board of Directors. The committee is comprised of the Administration Group General Manager, and Function Managers from the Management Review & Support Dept., Finance & Accounting Dept., Human Resources Dept., General Affairs Dept., Legal Dept., Corporate Communications Dept., Corporate Planning Dept., CSR Promotion Office, as well as the Chief Compliance Officer (CCO) of TDK-EPC. The mission of the committee is to promote awareness of the TDK Code of Conduct. This is achieved by implementing training programs and carrying out many other activities aimed at the employees of the TDK Group companies all over the world. It identifies problem points and attempts to find solid and lasting solutions.

CSR Task Force

The CSR Task Force operates under the umbrella of the Business Ethics & CSR Committee. There are eleven functions that correspond to the main topics of CSR activities. In response to issues identified by the Business Ethics & CSR Committee as relevant to CSR in the industry, the Task Force implements a broad scope of CSR-related activities.

CSR Promotion Structure

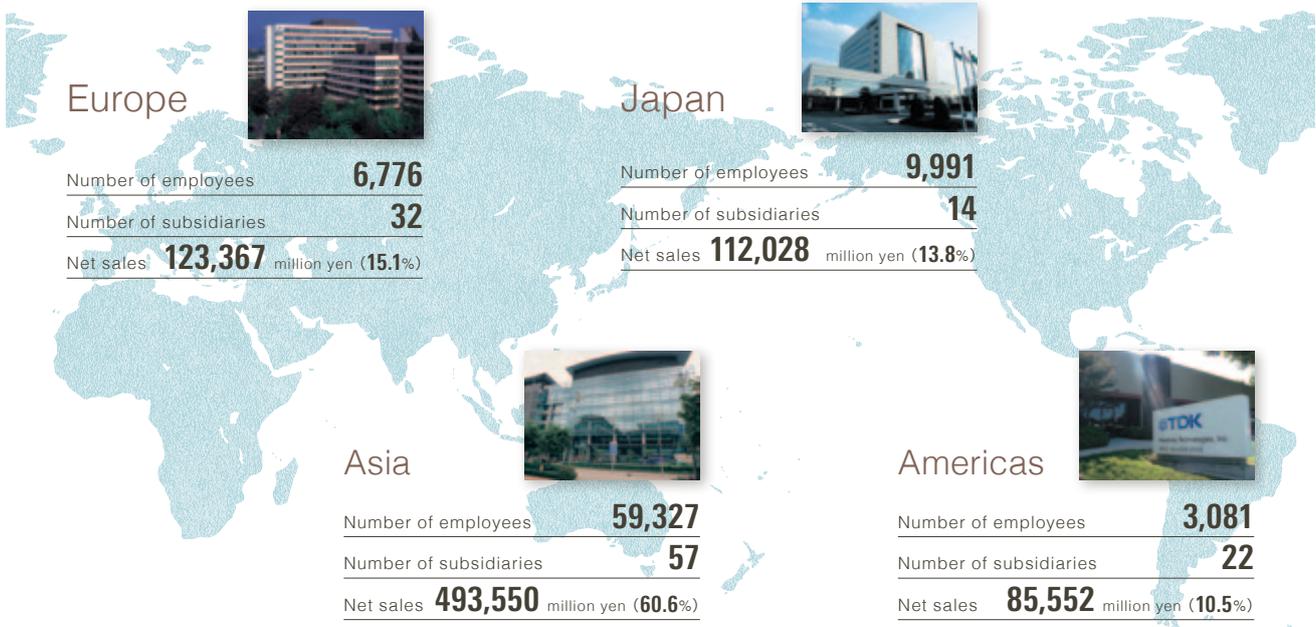


Global Expansion of the TDK Network

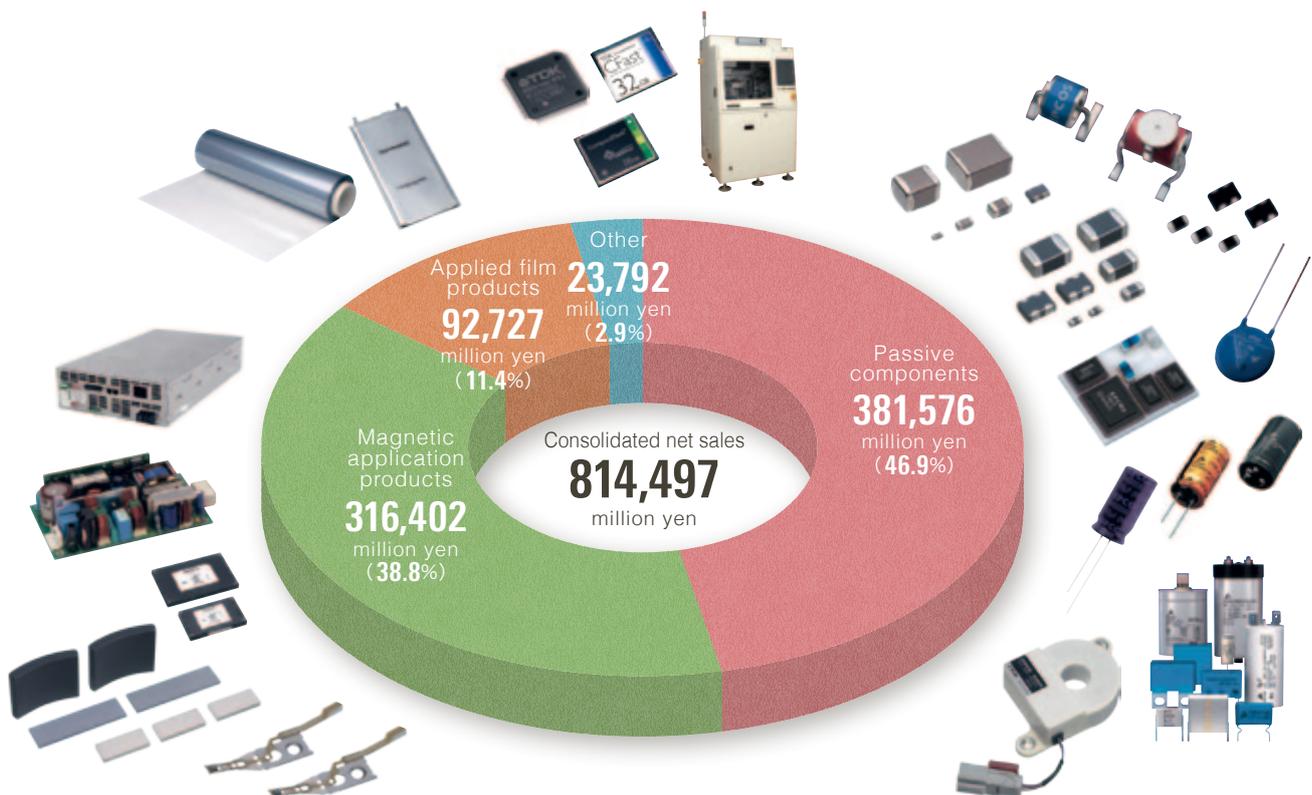
From TDK's founding in 1935, TDK business has expanded into various countries and regions around the world. The TDK product lineup has also greatly diversified. Remaining an important player on the world stage, TDK aims to keep delivering services and products needed by society.

The TDK Global Network

(As of March 31, 2012)



FY2012 Net Sales by Industry Segment (Composition ratio for FY2012)



TDK products and technologies support a smart society filled with dreams

Cloud computing and smart grids are social infrastructures that will give rise to substantial changes in lifestyles and business. TDK is contributing to the development of a smart society filled with dreams through its original and competitive products and technologies.

HDD Heads

HDD heads are manufactured using advanced thin-film process technologies. TDK's HDD heads are the leader in high-density recording and support further miniaturization and higher capacity of HDDs.

[Main Applications]
HDDs used in PCs, HDD recorders, data centers, etc.



Laptop PCs



Data Centers



Tablet PCs



ITO Films and Hard Coat Films

Transparent conductive films for touch panels are made from thin films of ITO, a transparent electrode material. TDK also provides hard coat films that are scratch resistant and offer outstanding smoothness and high fingerprint removal performance.

[Main Applications]
Touch panels for smartphones, tablet PCs, etc.



Smart-phones



Micro DC-DC Converters

These ultra-compact, high-performance power supply modules use surface mounting of chip components on a multi-layer substrate with embedded bare IC chips that use proprietary silicone embedding substrate (SESUB) technology.

[Main Applications]
Smartphones, mobile phones, tablet PCs, etc.



Lithium-Ion Polymer Batteries

These rechargeable batteries offer high energy density and are suitable for use in mobile and a wide range of other devices. Technologies relating to key parts including the electrodes and the separator are one of TDK's strengths.

[Main Applications]
Mobile devices such as smartphones, mobile phones, tablet PCs, etc.



Neodymium Magnets & Ferrite Magnets

Neodymium magnets boast maximum power, while ferrite magnets offer outstanding cost performance. TDK is developing materials free from rare earth elements.

[Main Applications]
Neodymium magnets: hybrid and electric vehicles drive motors, wind generators, industrial equipment, etc.
Ferrite magnets: Compact automotive DC motors, consumer appliance motors, etc.



Wind Power



HVDC Film Capacitors

These power capacitors are used in high-voltage DC systems for long-distance transmissions such as wind and solar power generating systems to improve transmission efficiency.

[Main Applications]
Generation and transmission systems, industrial equipment, railway and automotive electronic equipment, etc.



Hybrid and Electric Vehicle DC-DC Converters

These power supply units convert the high voltage energy from a main battery to low voltage energy for use by onboard electronic systems and charge backup batteries. High-efficiency conversion contributes to low-energy driving.

[Main Applications]
HEV, EV, PHEV (plug-in hybrid electric vehicles), etc.



HEVs EVs



Industrial Power Supplies

TDK is using transformer and circuit technologies to make power supplies smaller and more efficient. In addition to industrial equipment, advanced power electronic devices are also used by solar and wind power generating systems.

[Main Applications]
Solar and wind power generating systems, smart grids, etc.



Solar Power



Smart grids in harmony with the environment

Smart grids are regionally-distributed energy infrastructures that use renewable energy sources such as solar and wind power. Core TDK technologies based on materials technologies are showing their true value in the development of smart communities that link smart houses and smart buildings.

Cloud computing to link all devices

Cloud computing links all types of IT devices as well as people, information, and services through the Internet likened to a cloud. TDK's diverse range of electronic components and devices support the development of a worldwide cloud culture.

Overview of FY2012 Activities and the FY2013 Action Plan

The TDK Group identified action items that are particularly important from the perspective of CSR and works to implement these items through business activities. The PDCA cycle is applied to each item based on the action plan, and we continuously strive to improve activities.

Item	FY2012 Action Plan	FY2012 Results	FY2013 Action Plan
1 Contribution to the world by technology	Contribute to resolving social problems through business activities	<ul style="list-style-type: none"> Encourage the development of products that contribute to resolving social problems in priority areas such as communications, automobiles, industrial equipment and energy, and home information appliances 	<ul style="list-style-type: none"> Conducted the development of magnets that do not use rare earth elements, compact power supplies for LED devices that comply with the IP66 standards on corrosion prevention and drip-proofing, and multilayer inductors for mobile devices that can replace wound inductors
	Promoting the creation of environment-conscious products	<ul style="list-style-type: none"> Information disclosure and promotion of environment-conscious products (ECO LOVE products) Sales ratio: 30% and more 	<ul style="list-style-type: none"> Updated the web-based information on environment-conscious products (ECO LOVE products) Sales ratio: approx. 31%
2 Development of human resources	Innovative craftsmanship training	<ul style="list-style-type: none"> Continue the TDK Monozukuri Tradition Seminars Overseas expansion 	<ul style="list-style-type: none"> Conducted the TDK Monozukuri Tradition Seminars (36 employees in nine teams participated in FY2012) Conducted the seminars in China and Malaysia
	Development of global human resources	<ul style="list-style-type: none"> Cross-cultural communication training including IMD seminars Bolster the overseas training framework Bolster language study programs 	<ul style="list-style-type: none"> Conducted cross-cultural communication training and IMD seminars Overseas training program: Program used by 6 persons Provided support for language study programs under a self-training program and expanded the scope of support
	Promote diversity	<ul style="list-style-type: none"> Continue action plan implementation in various departments Strengthen management training Strengthen female staff training 	<ul style="list-style-type: none"> Implemented action plans in each department Implemented management training using e-learning and other tools
	CSR penetration and execution	<ul style="list-style-type: none"> Continue to implement e-learning (Japan) and widen implementation areas Continue and enlarge the scope of intensive training 	<ul style="list-style-type: none"> Launched e-learning overseas (China) and reviewed contents Conducted intensive training (Japan, Thailand, and Malaysia)
3 Society and environmental considerations in the supply chain	Promote CSR procurement	<ul style="list-style-type: none"> Improve and provide guidance for CSR check sheets for suppliers 	<ul style="list-style-type: none"> Revised CSR check sheets for suppliers Supported understanding of CSR by suppliers through the implementation of supplier briefings (Japan) Provisionally implemented supplier CSR audits (China)
	Cooperate with conflict minerals regulations*1	<ul style="list-style-type: none"> Gather information and assess trends regarding legal regulations for conflict minerals Provide proper response for customers and suppliers 	<ul style="list-style-type: none"> Gathered information and monitored trends regarding legal regulations for conflict minerals Provided proper response for customers and suppliers
	Reinforce CSR activity foundations and CSR responses to customers	<ul style="list-style-type: none"> Enhance the management level and implementation of regular TDK CSR 'Self Checks' at manufacturing sites Respond to CSR survey and auditing requests from customers in a timely manner 	<ul style="list-style-type: none"> Implemented regular TDK CSR 'Self Checks' at manufacturing sites and promoted understanding through site visits Implemented internal CSR audits Responded to CSR survey and auditing requests from customers in a timely manner
4 Symbiosis with the global environment	Promote environmental activities	<ul style="list-style-type: none"> Promote environment-oriented activities based on the TDK Environmental Action 2020*2 Achieve carbon neutrality 	<ul style="list-style-type: none"> Promoted environment-oriented activities based on the TDK Environmental Action 2020 Reinforced energy-saving programs at plants in China Completed environmental contribution quantification for some product families

*1) In the Democratic Republic of the Congo and neighboring countries, illegal mining and smuggling by armed rebel groups provides them with revenues and supports the conflict, leading to human rights abuses and other social problems including forced labor imposed on local residents and abusive treatment. In response, United States financial regulations were amended in July 2010 and the United States Securities and Exchange Commission imposed duties on companies that are publicly traded in the United States to disclose information concerning the use of tantalum, tin, tungsten and gold mined in this region.

*2) A summary of the TDK Environmental Action 2020 can be found on the following web site: http://www.global.tdk.com/csr/environmental_responsibility/

The TDK Group's Initiatives for Key CSR Action Items

In consideration of what society expects of us and what are the fields in which we can display our strengths and which have a significant impact on our company, the TDK Group decides important matters from the perspective of CSR and promotes everyday activities. On pages 15–28, there are fiscal 2012 activity reports for each category, a roundtable discussion in which young employees explore future potential, and an introduction to specific examples together with comments by the people in charge.

1

Contribution to the world by technology

What should today's technological innovations look like if they are to solve social problems and bring an ideal future into reality?

P.15

2

Development of human resources

Cultivating excellent manufacturing leaders: The TDK Monozukuri Tradition Seminars

P.19

3

Society and environmental considerations in the supply chain

Working toward a win-win relationship with customers and suppliers: TDK's CSR procurement

P.23

4

Symbiosis with the global environment

Tackling the challenges of encouraging the use of next-generation energy on a global scale

P.25

1

What should today's technological innovations look like if they are to solve social problems and bring an ideal future into reality?

In the course of promoting CSR, the TDK Group attaches great importance especially to solving social problems through the use of its unique technologies.

What kind of society should we envision as an ideal future?

What would be the technological innovations to achieve such a future?

What path should the TDK Group take?

Six developers, researchers, and engineers, all responsible for TDK's technologies in the renewable energy field, have gathered together for a roundtable discussion.



Participants: (from left to right in the photo)

- Hiroaki Hasegawa, Assistant Manager, EDLC Group, New Business Promotion Office, Production Engineering Center, TDK Corporation
- Mitsunari Suzuki, Assistant Manager, Energy System Development Group, Devices Development Center, TDK Corporation
- Kazuki Iwaya, New Energy Systems Department R&D Division, TDK-Lambda Corporation
- Taeko Tsubokura, Chief Researcher, Ferrite & Metallic Materials Group, Material & Process Development Center, TDK Corporation
- Yoshihiko Ohashi, Chief Researcher, EDLC Group, New Business Promotion Office, Production Engineering Center, TDK Corporation
- Tomohiko Kato, Assistant Manager, Energy Device Development Group, Devices Development Center, TDK Corporation

Thinking of the ideal society of the year 2020

"Sharpen TDK's core technologies and contribute to the evolution of new social infrastructures" is TDK's medium-term vision that the company has established starting in 2012. The environment and energy area is one of TDK's focus areas. TDK recognizes its role to contribute to bringing a sustainable society to reality through the application of the core technologies that it has accumulated.

Searching for common issues, the six developers,

researchers, and engineers discussed what society might look like if we extend the present into 2020. The year 2020 is the target year for the TDK Environmental Action 2020. Various concerns were expressed, for example, "advancing depletion of oil and other fossil fuels may result in a more uncertain period" and "an accelerated increase in the world population may force everybody to scramble for water, food, crude oil, minerals, and other resources of limited supply." The concerns vividly highlighted the worldwide anxiety about the deteriorating amount of resources and energy on the earth.

Next, as the participants envisioned an ideal society of 2020, they suggested, for example, "a recycling-oriented society that uses resources from the earth for production but returns them back to the earth after use" and "a society where electricity is available equally to everybody regardless of whether it is an advanced or advancing country." Another view was "a self-sufficient society where electricity generation and consumption are balanced at the home and community level." Apparently, distributed-energy systems that do not depend on centralized large-scale generating facilities are drawing much attention in recent years. Numerous comments that followed reflected TDK's on-going emphasis on development of products to meet such a trend.

Possible technologies to make up for various "shortages"

Sharing a common vision of 2020, the six technical professionals explored the practical question: "What then would be required to turn that vision into reality?" Liberally inspired opinions were exchanged. Energy problems were recognized as hurdles that must be surmounted. The discussion zeroed in on the availability of renewable energy, such as solar energy, wind power, and hydro-energy as alternatives to fossil fuels. Nuclear power is being reviewed in various countries after the Great East Japan Earthquake. A strong view came out in our discussion, "it is absolutely necessary that we switch from nuclear power to natural energy."

With attention focused on the reuse of resources, we heard such opinions as "we should be conscious of precious resources around ourselves. For example, we can collect old mobile phones that many of us have at hand to recover a great amount of rare earth elements." The background to such opinions is the fact that the continuously growing global use of mineral resources is threatening their sustainability, as in the case of fossil fuels. Taeko Tsubokura, who works on development of magnets that use no

dysprosium, explained, "The neodymium magnet, now widely used in wind turbines and HEV/EV drive motors, use dysprosium, which is a rare earth mineral, for resistance to heat." Ms. Tsubokura was enthusiastic about bringing a dream to reality, "The key to achieving both heat resistance and coercive force is grain refinement of the sintered body without depending on a dysprosium composition. My team wants to contribute to solving resource problems by making concerted efforts to develop and start manufacturing neodymium magnets without dysprosium."

The discussion also addressed the meaning of affluence and human welfare from the ordinary citizen's perspective, "It is important to find value in a simple lifestyle." A profound discussion on solving the water problems followed.

Technological innovations that address energy problems

The subject switched to the question: "How can technologies contribute to solving social and environmental problems?" The participants fired positive opinions at one another. Here again, concerns over energy problems dominated the floor. It was stated that, "Natural energy

What should today's technological innovations look like if they are to solve social problems and bring an ideal future into reality?



From left: Mitsunari Suzuki, Taeko Tsubokura, and Yoshihiko Ohashi

now is converted into electricity at an extremely heavy conversion loss. How can this loss be ever improved, and the conversion efficiency raised closer to 100%?" "The consumer may be conscious of saving power, but I wish there were a device that automatically suppresses consumption above a necessary level." These fields are obviously the very fields where TDK is developing magnets, power supplies, wireless power transfer, current sensors, and others, and may capitalize on its strength. Wireless power transfer is a wireless energy supplying system using no electrical cables. There have been some wireless power transfer systems using electromagnetic induction for charging electric toothbrushes and personal handyphone system. The problem with these systems was that the distance between the charger and the device to be charged was limited. Engaged in the development of wireless power transfer, Mr. Suzuki explained, "I am tackling a project of freeing people of the world from connecting cumbersome cables to charge their batteries. I am also exploring ways to reduce energy loss especially in charging large power batteries like those used in EVs." Mitsunari Suzuki will continue tackling the issues at hand, hoping that the year 2020 will find wireless power transfer used so commonly in the world that people can charge their batteries very simply no matter where they go.

The electric double-layer capacitor (EDLC) and the separators, TDK's product and material, respectively, also drew much attention. It is difficult to stably supply solar and other natural energy, and consequently requires technologies to store it. If a highly efficient storage is

available, energy becomes relocatable, enabling use of a required amount at a required time with no concern for the location or time. The concept behind the "smart grid" (the power transmission grid of the next generation) is based on distributed power sources. We heard, "Storage technologies for locally-produced energy will become especially important in the future." Tomohiko Kato undertakes the development of materials for the separators which are to keep the anode and the cathode apart in a battery. Mr. Kato told us, "With today's demand for high-capacity, long-life batteries using no rare earth elements, I want to seek out ideal, highly durable materials and three-dimensional structures for separators. I also wish to tackle the development of process technologies that would yield little waste. I will continue to undertake many kinds of development that would render the TDK technologies useful to a multitude of people and contribute to solving energy problems."

of absolute necessity.

As social responsibility demanded business initiative for achieving a sustainable society, the role that TDK should play toward the future has expanded significantly. TDK's opportunity for showing solid presence in the renewable energy market has also expanded. There was a comment, "I have felt the importance of stopping occasionally, while I busily discharge my daily duties, to envision an ideal future, and think of what I should accomplish now." It drew many approvals and proved to be an opportunity to confirm the importance of a medium to long-term vision.

Envisioning an ideal future, and thinking of what to accomplish now from a long-term perspective

Contribution to solving the social problems through the use of TDK products and technologies is the paramount proposition given in the Group's CSR. Today's society faces problems of enormous magnitudes in its energy sector. Technological innovations that address these problems are

From left: Kazuki Iwaya, Tomohiko Kato, and Hiroaki Hasegawa



Seen from different parts of the world Availability of Renewable Energy in the Year 2020

To expand our perspective worldwide, we asked persons in charge of different regions for their views, which we shared with the participants at the round table discussion.

Q1 What do you think society will be like in Europe, China, Japan, and the U.S.?

Q2 What do you think would be the problems of society in 2020?

USA

Marc Picard
Regional Distribution Sales Manager, Distribution Sales Group
TDK Corporation of America



- A1** The world will continue to see additional strain and demand on its energy supply. The U.S. will need to embrace energy conservation measures, develop renewable energy, and find environmentally safe ways to extract natural resources.
- A2** The U.S. is committed to improve its energy policies and what is now needed is a coordinated effort between the government and the private sector. In order to efficiently supply electricity to meet the demand, it will be necessary to develop and spread high-performance smart grids through technical innovations in electronics.

China

Takuji Fukuda
Deputy General Manager, Corporate Planning
Greater China Sales Business Group
TDK (Shanghai) International Trading Co., Ltd.



- A1** China will be the heaviest energy-consuming country in the world. I think the country will have made every effort to build a resource-saving and environmentally friendly society based on a "strategy of sustainable development." The resultant proportion of renewable energy consumption is expected to be about 15% by then.
- A2** I can think of various problems stemming from over dependence on coal-fired power generation and the consumption of various resources. The Chinese Government has declared to reduce CO₂ emission by 40 to 50%. I would expect the use of wind power and solar energy to be increasing continuously.

Europe

Klaus Franz
VP Direct Sales Industry, Sales
TDK Electronics Europe GmbH



- A1** The production and distribution of renewable energy becomes almost reality, while Europe will be a front runner in terms of renewable energy. In particular, I think that by 2020 large-scale smart energy systems will be in wide use.
- A2** In order to address the issue of instability in renewable energy generation, smaller-size components, such as all capacitors and inductors, with improved high-current and high frequency compatibility will be required. In addition, technology will need to be developed that can support power stabilization across countries in the EU for example by batteries.

Japan

Shigeru Ogiya
Manager, Industry / Energy Department,
Industry Segment Development Division
Electronic Components Sales & Marketing Group, TDK-EPC Corporation



- A1** I speculate that residential photovoltaics will be in wide use and wind turbines will be installed mainly at sea. I think prevalence of smart meters will have advanced the optimum and visualized mode of electric power consumption and made further savings in electricity.
- A2** I believe Japan needs to address deregulation of trading electric power among power companies, development and reduction of the price of high-efficiency inverters and coils, and establishment of a nationally accessible power grid. In terms of the country's geographic features, I feel the floating-type wind turbines and small-scale water power generators are plausible.

2012 CSR Activities Report

TDK is committed to R&D in TDK original technologies and products based on its materials technology. They range from basic research to development of applications for new products. TDK aims at contributing to solving social problems through the development of rare earth element-saving/-free magnets, miniaturized thin-film RF components, power capacitors, and others. In the environmental field, TDK has expanded the sales ratio of the environment-conscious products "ECO LOVE products"* beyond 30% in FY2012, doubling that of FY2010. TDK will focus on the next-generation information and communications market and the energy related market. By concentrating its technological resources on these markets, TDK will be contributing to the evolution of social infrastructures.

* Environment-conscious products with high environmental impact reduction effects and that are industry leaders are certified as ECO LOVE products, and ECO LOVE products with effects at the highest levels in the industry are certified as SUPER ECO LOVE products. For information on environment-conscious products from TDK, please visit our web site: <http://www.global.tdk.com/csr/ecolove/index.htm>

Comments from the Expert

Haruhiko Ando
Counsellor,
Intellectual Property Strategy
Head Quarters,
Cabinet Secretariat,
Visiting Professor,
University of Electro-Communications



Save the earth with your unique and ecology-friendly materials technologies! The Cabinet's Intellectual Property Strategic Program 2012 points out that, in the current age of global networks, the innovation-initiating mechanism has evolved into an open, global, and flat system. If a company in a dynamic business ecosystem makes its corporate motto to "contribute to culture and industry through creativity" and creates novel values out of materials, it must promote bonds with outside organizations in science and technology while bringing out the best in the power of internal human capital. TDK has developed business centered on ferrites through a venture with the university that originated them. The company treasures its global circle of human capital.

I wish to offer three suggestions for TDK to be the trailblazer in the super ecology-friendly business in the world. First, beyond HAL (High-Anisotropy field Layer) review all material losses throughout the supply chain, and become a strong but trim company. Second, using the core technologies as the basis, save the earth with ecology-friendly super technologies. Examples are in-wheel motors, superconductor-based wind turbine generators, and state-of-the-art HDDs for ecology-friendly cloud computing. Finally, get a head start in "the fourth-generation R&D paradigm" by taking full advantage of "big data." With the Company's emphasis on university collaboration and great track records in various fields, including giant magnetoresistance (GMR) technologies, I believe TDK will have great success in overcoming many challenges. I look forward to seeing TDK in action.

2

Cultivating excellent manufacturing leaders: The TDK Monozukuri Tradition Seminars

What is TDK's spirit?

What is real customer value creativity?

Learning how to boost expertise: Tomio Kato and his trainees help explain more about the TDK Monozukuri Tradition Seminars

Passing down TDK's spirit



Tomio Kato
Monozukuri Tradition Seminars,
Monozukuri Reinforcement,
Production Engineering Center,
TDK Corporation

In a room in the TDK training facility in Nikaho City (Akita Prefecture), about a dozen of voices of trainees to the TDK Monozukuri Tradition Seminars can be heard saying, "Stand up!" "Bow!" and "Please go ahead." After the opening remarks were delivered, Tomio Kato stepped forward. He is the trainer of the TDK Monozukuri Tradition Seminars.

"In the last class, I mainly spoke about 'what is at the heart of manufacturing'.

Today, I would like to discuss how we can embody this by presenting a few core principles in manufacturing." Mr. Kato, speaking passionately, had captured the full attention of the trainees in the room.

The TDK Monozukuri Tradition Seminar was started in 2010 in order to cultivate the next generation of company leaders, such as TDK's future executive managers and plant managers. The catalyst for this new training program was top management concerns about the current state of manufacturing, which is, of course, at the core of all TDK business activities.

TDK's Corporate Motto is "Contribute to culture and industry through creativity." Based on our three corporate principles of "vision," "courage," and "trust," TDK has continued to contribute new values through manufacturing while continually striving to keep pace with the rapid changes underway in society. However, as our company continues past its first seventy-five years, employees from our early days, who knew the struggles and methods of manufacturing in those tough times, are not necessarily with us any longer. At the same time, research and manufacturing bases are being rapidly set up overseas. As the TDK group expands globally and we have more employees in TDK companies around the world, we realize that we don't want to lose sight of the spirit of our company.

The situation we find ourselves in now is that even when there are no real changes in the level of employees' technical capabilities and skills, these employees remain serving as

experts in their respectful fields, and we are therefore unable to attain overall optimization in manufacturing. We need to cultivate true "manufacturing leaders" who will be able to develop core principles which will serve as a foundation to support all the various processes involved in manufacturing. It is crucial that we create a place where we can pass on the legacy of TDK's "spirit of manufacturing," and the TDK Monozukuri Tradition Seminars was started with this purpose in mind.

Aiming for overall optimization: "through production"

For the past two years now, the TDK Monozukuri Tradition Seminar has been presented three times a year. Six seminars were held so far. The program, which lasts ten days, encourages trainees to think for themselves and implement things on their own. Run under the concept of learning through self-study, trainees attend lectures on TDK's history and manufacturing activities; they engage in meditation, take plant tours, and engage in on-site trainings. Discussions are held in small groups in which a variety of content is introduced. In addition, trainees have the opportunity for having conversations with top management executives. It is a valuable opportunity for them since it offers experiences not ordinarily available to employees during their normal work. During the seminar, the core lectures are mainly given by Tomio Kato. These lectures on TDK manufacturing are based on his own long and rich career as a technical expert at TDK. This "heart and soul of manufacturing" is approached from various different angles.

For example, one important perspective is that of "through production." In other words, holistic manufacturing. Rather than looking at only one process of manufacturing, it takes into account the entire life of a product from the materials stage and in-house production all the way to the delivery to customers. By looking at the big picture—and linking the plant to the market—consistency in manufacturing becomes a core principle around which manufacturing is implemented, and this can lead to greater optimization in management as well as manufacturing reforms and improvements.

Manufacturing "from the point of view of the products"



Masayuki Yamazaki
Senior Manager,
Ferrite Magnet Products
Business Unit,
Ferrite & Magnet Products
Business Group,
TDK Corporation

Because my approach to manufacturing is based on years of experience, I have myself wondered if it's right or not. Taking part in the Monozukuri Tradition Seminar with Tomio Kato, I realized that my thoughts up till now about manufacturing were not off base and this gave me a feeling of great confidence.

The most important thing I became aware of during the seminar was to approach things from the perspective of the products. When Mr. Kato made a plant visit to the Shizuoka Plant, he said watching the packing process, "Aren't you all hurting inside? I feel pain since the products say they are in pain!" When packaging the product, the work called for pushing down lightly on the top of the product to enable it to fit inside the box. No one imagined that it could be hurting the product, but Mr. Kato's message was that we must always work keeping in mind the perspective of products.

We are currently trying to apply some of the key concepts learned from the seminar in order to recapture our position as the world's number one ferrite magnet manufacturer. In order to realize timely supply of our products with necessary quantity and high quality at a low price, it is necessary to implement the "through production" in other words, holistic manufacturing. In the "through production" line, all the manufacturing processes, from materials phase to shipping phase, are to be integrated into one process flow and realize maximum "output (sales)" with shortest lead times using minimum "input (materials, equipments, staff, energy, etc.)". With maximizing the throughput, we aim at providing the customer with the highest level QCDS (quality, cost, delivery, and service).

This expanded point of view will ensure a more thorough implementation of the ideals that "quality comes first" and "customer orientation." This perspective goes beyond just thinking about things from the manufacturing angle, but rather seeks to ask questions about the kinds of products that

Cultivating excellent manufacturing leaders: The TDK Monozukuri Tradition Seminars



To help form the character of a leader, one part of the training is sitting in meditation



Practical training on site



Group discussion

Tomio Kato's journals already number over ten volumes



TDK's President attending a debriefing meeting on the last day of seminar

customers will truly look for and will enable us to continuously keep aiming to offer better products. "Not to merely state the obvious," says Mr. Kato, "but it is crucial that we don't just think about the results we want to achieve but rather we have to introduce the principles of thinking and behavior in to our manufacturing process.

Being capable of changing one's perspective and

changing one's thinking is crucial. No matter how advanced our technologies become, if we have a rigid way of thinking, we will never be able to solve problems. For example, sometimes we have to think outside the constraints of labor or costs. Alternatively, sometimes we have to think beyond the perspective of manufacturing and try to re-think things from the point of view of things or products. By doing this, we might realize that the manufacturing process, about which we had neglected, is actually causing a negative impact to the products. By making radical changes in the way we approach issues, we can make new discoveries that will lead to improvements in manufacturing quality.

Much of the content for these lectures on manufacturing has come from Mr. Kato's own journals. Mr. Kato, during the course of his career, kept a diligent record of things he noticed or learned on the job, and Mr. Kato urges his trainees to also keep a journal where they can jot down their thoughts about their work or things they learned at lectures. He recommends to all trainees that rereading the notes later will be a valuable experience for them.

that our ways of thinking may not be understood. However, the trainees were extremely attentive to the lectures and were very proactive in applying what they learned about traditional TDK manufacturing to their worksites. I could see progress in both the employees as well as in the plants and this was truly wonderful to see." Local plant employees attended the 5th term seminar and practical on-site training held in Malaysia.

Mr. Kato said that he wants to accelerate his continued contribution to human resource development in the Company so that TDK can become a truly competitive company which can generate new value in society by not only taking the direct customers into consideration, but also keeping the

end product consumers in mind. "And, it won't be me that will allow us to do this but each of the trainees who I hope will use the knowledge they learned in the seminar, become manufacturing leaders in their own right, and pass it down to the younger generation." said Mr. Kato.

It is the spirit of manufacturing that allows TDK to stand as "a company that is trusted by society." Our success in this is due to both our ability to evolve with the times while we recognize the traditions that have nurtured our company this far and pass them on into the future.

I want to convey what I learned to the workplace



Cui Zhenshu
Manager,
WET Manufacturing
Department,
Dongguan Changan
Huanan Electronics

Participating in the seminar, I was able to understand the importance of holistic manufacturing. I want to work hard without fear of failure as part of the TDK team, to achieve the goals of holistic manufacturing. To do this, we will all need to work together using our collective wisdom and strengths, I think. In the workplace already we are seeing the results of holistic manufacturing in terms of improved productivity, yield, and lead times.

I want to take what I learned in the seminar and help spread the ideas throughout the workplace to help all employees come together under the same aims and goals. I think this will be my role as someone who participated in the seminar to work toward these goals which will be a happy win-win for everyone—including our customers, consumers, as well as for us working at Dongguan Changan Huanan Electronics Factory.

TDK Monozukuri Tradition Seminar, held at Dongguan Changan Huanan Electronics Factory (July 2011)



The evolution of TDK manufacturing

Rather than focusing on individual employees, another theme of the seminar is to create a team made up of a broad range of manufacturing leaders from all the different areas of manufacturing, such as sales, development, design, manufacturing, production control, quality assurance, and manufacturing technologies to try and bring about a complete reformation in manufacturing. Based on the concepts of "through production" whereby manufacturing is approached from a holistic perspective that creates value from the point of view of the customer, the seminar will result in improvements to the entire manufacturing process, which will incorporate efforts from employees from a variety of departments.

So far, the TDK Monozukuri Tradition Seminar has seen 69 employees participating in 19 groups. The 4th term seminar, held at the Dongguan Changan Huanan Electronics Factory in July 2011, was the first seminar to be held outside of Japan. Mr. Kato described feeling slightly worried when he first learned the course would be held outside of Japan, saying "Because of the differences in culture, at first I worried

2012 CSR Activities Report

In order to strength the development of "self-sustained human resources" which is the objective of the human resources development, TDK has been carrying out a variety of human resource development programs.

As part of the company's human resource development policy, the company has so far organized IMD (International Management Development) seminars and cross-cultural communication trainings.

The overseas trainee programs are aimed at younger employees. TDK plans to increase the number of participants in Japan and overseas by focuses on the following:

- 1) to gain a better understanding of different cultures and to make use of the gained knowledge
- 2) to gain ability to engage in global business
- 3) to establish human network

In addition, a continued effort is being made to increase CSR-consciousness in-house through training courses targeting employees at different levels in their careers, group training, and e-learning, with the aim of putting into practice CSR activities in the TDK day-to-day operations of each and every employee.

Comments from the Expert

Masaaki Kogure
Ph.D., Sociology,
Senior Researcher,
Institute of Prosocial
Research



TDK President Takehiro Kamigama has passionately spoken about how TDK can contribute to society through the creation of new and highly-unique materials and components. TDK, a company that came into being as the world's first business venture to sell ferrite, is a company with unique manufacturing traditions. I think it is very important that this seminar has been started to teach younger employees about the traditions of the company, and I think this seminar will surely come to bear fruit in many ways. I was also impressed by TDK's Corporate Principles of "vision," "courage," and "trust." Creative originality requires having a vision. Courage to challenge and trust coworkers is vital to achieve a vision. Often one finds that corporate principles are decorative phrases that only gather dust. In contrast, TDK's principles are those that create a vision or culture and are utilized in the company's everyday research and development. This was clear by reading TDK's CSR reports, where it was apparent that at TDK an independent and vigorous corporate culture actually serves to support researchers in their pursuit of perhaps unattainable dreams or to help promote various departments working together in development. I expect the Company to foster and develop their human resources, both in Japan and overseas, as a leading global corporation that values its unique corporate culture of manufacturing.

3

Working toward a win-win relationship with customers and suppliers: TDK's CSR procurement

TDK Group business activities are supported by the many solid relationships we have with our customers and suppliers. This article will discuss what kind of CSR policies and practices are being promoted by the TDK Group from our position as both supplier and buyer.

TDK's position in the supply chain



Emphasis on providing responsible products from the perspective of the supply chain

In recent years, stakeholders have been turning their attention to "responsible products," so the production process, in terms of human rights, labor, and the environment, of products is being analyzed just as closely as quality. In 2004, the three big American IT companies (Hewlett-Packard, IBM, and Dell) took initiative to draft the EICC (Electronic Industry Code of Conduct). This was followed in 2006 by the Japan Electronics and Information Technology Industries Association (JEITA) drafting its own code of conduct, called the JEITA Supply-Chain CSR Deployment Guidebook. This has led to increasing interest and demands in terms of CSR in Japan.

Before a product reaches its end consumer, it starts off in the procurement stage involving the purchasing of raw materials from any number of companies. Often this process from procurement to product sale takes place across borders. TDK, as a company that manufactures and sells component products, is involved in the procurement of raw materials and the buying of prefabricated parts. TDK therefore is both a buyer and a supplier. Because TDK is a kind of "midstream" company that both procures parts as well as manufactures components and products, the importance of promoting CSR throughout the supply chain is recognized and set forth as one of our crucial activities.

A self-check sheet to raise CSR awareness

The supplier's responsibility

In 2009, TDK decided to make "EICC + JEITA" the cornerstone of the company's CSR activities for TDK

production sites. The company then created a "TDK CSR Self-Check Sheet" to be used at our main production sites. "Until then, customer requirements regarding quality, delivery, and costs were the main concerns. However, with the introduction of new practices concerning labor and the environment, which are reflected in the TDK CSR Self-Check Sheet, we discovered that these were things the customers wanted as well," said Yasuaki Fukuoka, who works in the Strategic Planning Department.

Since 2010, a team from the CSR Promotion Office has made annual trips to visit TDK plants, mainly in China and Southeast Asia. The CSR demands we get from our customers are not uniform and the laws and regulations and social background differ from country to country, and therefore TDK visits its overseas production sites in order to both grasp the current situation on site as well as to work to promote a stronger understanding of CSR.

"We have been increasingly seeing companies that state that unless certain CSR requests are not addressed, they will rethink their business with us. There is a diversity of values and meeting these differing values will pose a challenge in the future" Mr. Fukuoka said.

Our policy is to continue carefully communicating with all of our production sites to solve problems one by one as they come up.



Yasuaki Fukuoka
Senior Manager,
Strategic Planning Department
Business Administration &
Planning Division
Electronic Components Sales
& Marketing Group
TDK-EPC Corporation



CSR audit

Requesting answers to the CSR check sheet

The buyer's responsibility

From the perspective of the buyer, TDK asks that its suppliers provide answers to its CSR check sheet. The check sheet is part of an online system called the Supplier Partnership System and allows for the easy exchange of information online. The TDK CSR check sheet, which was drafted in April 2012, is composed of approximately 60 items and is based on the JEITA guidelines.

"We review the check sheet every year to make it more effective. The check sheet is based on a self-regulating system so that the suppliers themselves can confirm their compliance and make self-improvements," explained Fumio Ono, who works in the Procurement Department.

In the 2012 fiscal year, 1,693 domestic companies (98%) and 1,025 overseas companies (92%) responded to our check sheet. In cases where problems are discovered, specific requests for improvements are made to those companies. Ono discusses the challenges and goals of the CSR check sheet: "In order for TDK to have better relationships with its suppliers, we must also have a very strong understanding of the background of the CSR demands and we must continue to strive to raise the level of



Fumio Ono
Manager,
Administration Group
Procurement
Department
Management System
Group
TDK Corporation

our own awareness."

In addition, TDK is facing challenges in finding local suppliers that meet both our CSR demands and our requirements of materials or parts. "We are now in an age when it is no longer acceptable to manufacture products with components from suppliers that are less aware of CSR. First, TDK clearly shows the CSR requirements we attach importance to and it is crucial that TDK collaborates with suppliers and strives to meet those requirements," says Mr. Ono, looking toward the future.

TDK aims to build solid partnerships with its suppliers and maintain a win-win relationship, guided by our "Global partnership purchasing principles," that benefits both parties. In order to respect the work environment and human rights of all people involved in the supply chain, TDK is committed to engaging in active communication in its continued promotion of CSR.



Briefing sessions for suppliers

2012 CSR Activities Report

The TDK CSR Self-Check Sheet has been implemented every year, since 2009, at major TDK Group production sites, and CSR internal audits were conducted at some of these sites this year. TDK will continue to support these activities, while we improve in the level of CSR activities within the TDK Group.

The company continued to ask suppliers to use the existing TDK Supplier Partnership System to fill out the CSR check sheet. This allowed TDK the ability to ascertain the current situation. Revisions were also made to the CSR check sheet and CSR audits and briefing sessions were held in order to improve its own CSR activities.

In addition, regarding to conflict minerals, clear communication is recognized as the most important responsibility of the Company; and TDK both request information from their suppliers as well as provide clear answers to its customers. The company is striving to construct an internal system which is based on a strong understanding of laws and regulations to benefit CSR operations.

Comments from the Expert

Toshihiko Fujii
Consulting Fellow
Research Institute of Economy,
Trade and Industry, IAA
Visiting Professor
Graduate School of Economics
Science
Saitama University



The most challenging aspect of TDK's CSR is perhaps its CSR Supply Chain Management. This is because it is not internal but rather governed by behavior of outside suppliers. It's highly likely that it ends up a nominal system.

Therefore, the key to substantial improvements will be in mutual understanding based on a continual dialogue with buyers and suppliers. TDK is active as both a buyer and as a supplier so the company has a strong understanding of communication. TDK is committed to mutual understanding and dialogue with its suppliers. This commitment is seen in the novel self-diagnosis approach which led to the CSR check sheet, individual improvement requests, and the philosophy behind TDK's "Global partnership purchasing principles."

Meanwhile, there is room for clarification about the direction of initiatives. The disclosure of problems and their solutions has contributed to not only having a stronger commitment from suppliers, but it has increased various stakeholders confidence in TDK efforts as well. I expect to see continued progress in CSR throughout the TDK supply chain.

4

Tackling the challenges of encouraging the use of next-generation energy on a global scale

In our modern world, it has become clear that energy problems must be tackled on a global scale. While the demand for energy still is on the rise, a plentiful supply is by no means assured. Finding ways to distribute energy more efficiently and utilizing alternative sources to fossil energy are therefore topics of vital importance.

From a base in Europe, where the use of renewable energy sources is progressing, the TDK Group participates in these efforts through its power capacitor business.



1 Málaga city in Spain expected to be one of smart cities
2 New factory for power capacitors in Málaga
3 View from inside new factory in Málaga



Minimizing energy losses during long-distance transmission of electrical energy

TDK not only offers a broad lineup of electronic components that help to improve energy efficiency, we are also actively involved in a variety of markets, such as automobiles and rail transport, digital home appliances including mobile phones and other mobile information devices, medical equipment, and more. Furthermore, energy systems for the generation and transmission of electrical power present new business opportunities through which we can contribute to society. The energy market is undergoing drastic changes on a global scale. Not only in the industrialized countries but also

in rapidly emerging markets such as China, India, and Brazil we are seeing a transition towards expanding the use of renewable energy sources including solar power and wind power.

Power companies the world over want to minimize the losses that occur during long-distance transmission of electrical energy, and are increasingly adopting HVDC (High-Voltage Direct Current) transmission systems to this end. A large advantage of the HVDC approach is superior transmission efficiency, with losses over a distance of 1,000 kilometers being as low as 3 percent. Compared to AC transmission systems that can have losses of 6 percent and more over the same distance, this is clearly a better solution. For example, compared to AC transmission HVDC can avoid losses of about 120 megawatts when 4,000 megawatts are to be transported, or enough electricity to power about 30,000 homes.

EPCOS brand power capacitors are expected to play an increasingly important role in stabilizing HVDC systems. In advanced multi-level voltage-sourced converter (VSC) HVDC systems, up to ten times more power capacitors are needed compared to conventional HVDC systems. Incorporated into VSC HVDC modules for use in converter stations, the capacitors serve to smooth high voltages in the several thousand volt range.



MKK HVDC power capacitor

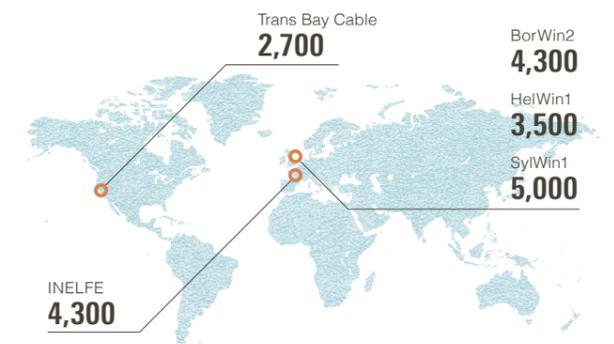
VSC HVDC transmission module

The TDK Group has contributed to several successful high profile projects in the growing VSC HVDC market. They include the Trans Bay project from 2008 (an HVDC link extending the length of the San Francisco Bay) and two major projects starting from 2010 to connect the North Sea wind farm projects BorWin 2 and HelWin 1. Most recently, we have supplied capacitors for the link project for the SylWin cluster of wind farms in the North Sea. For all of these projects which are undertaken by one of the largest electrical manufacturers in the world, EPCOS brand power capacitors were selected.

A further example is the INELFE project linking the power grids of France and Spain as part of a trans-European power transmission network. Power capacitors produced at a new plant in Málaga are to be used for this project.

In the near future, major wind power projects will be launched in locations such as the German Bight and off the east coast of England. In the long run, however, the focus of the energy business is likely to expand beyond Europe to other markets and projects. One such project could be Desertec, a concept to generate solar power and wind power in the desert regions of northern Africa.

VSC HVDC project map



Number of capacitors per project (approximate)

Tackling the challenges of encouraging the use of next-generation energy on a global scale

Tackling the development of high-level products together with the customer



David Pelaez
Global head of research
FILM Business Group
EPCOS Electronic
Components S.A.

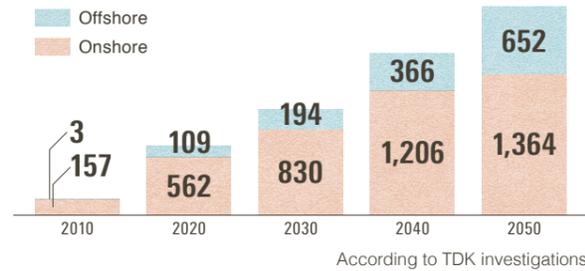
As the single source supplier to the electrical manufacturer mentioned earlier for conventional HVDC systems, the TDK Group was the preferred partner to address their new capacitor specifications already from the initial development phase of the latest and most advanced generation of HVDC technology. Already in 2005, an R&D team started to develop a special type of power capacitor (MKK HVDC capacitor) for the Trans Bay project in San Francisco, U.S.A.

The demands on these capacitors are extraordinarily high. Not only must they deliver an extremely long life expectancy of 40 years, they must also be able to handle very high energy levels and surge currents. For these reasons the MKK HVDC capacitors are some of the most thoroughly tested and qualified components in the TDK Group's product lineup.

"To develop successful products to such high customer expectations, you need a research and design team with excellent knowledge about the physics and electrical engineering of power electronics. The team must also be versed in layout and simulation and possess extensive practical knowledge in testing and qualification. In addition to the knowledge and experience of our own team, a key success factor in converting a specification into a layout and finally a reliable power capacitor is the close cooperation with the customer and joint developing and testing." comments David Pelaez of the FILM Business Group. "We are currently aiming to develop capacitors for further increased power levels and with more efficient heat dissipation. To achieve these goals, we are working very closely together with our customers."

Tackling difficult challenges in close and constant cooperation with the end user—this stance exemplifies how TDK contributes to solving important issues that face our modern society.

Wind power capacity projection on a global scale from 2010 to 2050 (GW)



Making optimum use of TDK's competency in a global framework

The continued improvement of energy efficiency will be one of the major goals pursued by TDK also in the near future. Power capacitors are widely used in power generation, power transmission, power conversion, as well as power quality and power factor correction. Application areas include mass transportation, cars and trucks, generation and distribution of renewable energy, power factor correction installations, industrial drives, medical equipment, and much more.

The rapidly growing number of offshore wind farms around the globe will accelerate the market for state-of-the-art VSC HVDC technology. Many large-scale projects are being drawn up, with China emerging as a major focus area besides Europe. The number of companies operating in the HVDC systems sector also is growing accordingly. Within this global trend, TDK can make use of its unique strengths, to contribute to the realization of a sustainable society.

TDK has extensive experience in R&D and manufacturing and has built close relations with key customers based on mutual trust. We have an outstanding track record and a comprehensive grasp of the large-scale project business. These advantages will allow us to maintain and expand our position as one of the world's leading manufacturers of power capacitors.

New factory for power capacitors in Málaga

Combining efficiency with environmental friendliness through cutting edge technology design



Francisco Lavado
Director of operations
FILM Business Group
EPCOS Electronic Components S.A.

Optimized manufacturing concept

Due to new applications and innovative products, customer requirements for reliability have reached an unprecedented level. In order to meet these needs, creating a manufacturing setup that is innovative and efficient has become a number one priority. Our new factory opened in Málaga in 2011 not only implements a significantly increased level of automation and lean manufacturing concepts, but also employs state-of-the-art methodologies for saving energy in production, reducing waste, and protecting the environment. I am especially happy that in the energy rating by LOMA INGENIERIA, the new facility has achieved a rank of "B" for its primary energy consumption, which means that it uses less than 60 kWh of energy per square meter and year. This is a benchmark for

low energy design of any kind of new building.

When we started to plan our new plant in Málaga, we realized that we had a unique opportunity to completely re-engineer the entire production flow. Even though this required enormous investments, we are certain that we will receive a good return on them. Customer feedback during visits to the Málaga factory has been overwhelming.

The layout of this facility sets the global benchmark in power capacitor manufacturing today. We are proud of our new plant. We understand that it is our task not only to provide world-class products to global markets, but also to enable and support our plants in Nashik, India, and Ningguo, China. These plants will also manufacture MKK HDVC power capacitors for the fast growing markets in these regions and support our customers there with the highest quality and reliability products for HVDC applications.

2012 CSR Activities Report

TDK has established the TDK Environmental Charter as our Group environment policy with the aim of contributing to sustainable development. The TDK Environmental Action 2020 set a goal for achieving carbon neutrality based on environmental activities centered on environmental contributions through products, which is a first in the electronic components industry and progress is being made.

【Achieving carbon neutrality—the TDK way】

CO₂ emissions (environmental load) due to manufacturer operations — (minus) reduction of CO₂ emissions through products (environmental contributions) ≤ zero

In order to reduce environmental load, TDK reinforced its priority energy-saving programs in China, which accounts for about half of TDK's CO₂ emissions.

With the aim of increasing environmental contributions, TDK also completed the quantification of the environmental contribution of some of its product families, and, in fiscal year 2013, TDK will work on the preparation of calculation standards and the quantification of environmental contribution for all other product families that are calculable.

Comments from the Expert

Shunsuke Managi
Ph.D., Associate Professor
Graduate School of
Environmental Studies
Tohoku University



Achieving symbiosis with the global environment will require that business enterprises address environmental issues such as climate change. New technologies and products will be needed to control emissions from numerous locations. In addition, as the prices of oil and other resources rise, especially in industries that use large amounts of resources, the efficient use of resources will lead to a competitive advantage.

The TDK Group has prepared a report that fully appreciates the need to secure a competitive advantage by anticipating these market changes. The development and spread of new power capacitors that minimize energy losses will lead to higher environmental efficiency in the value chain, an indicator of the ultimate added value of corporate activities. These measures will reduce the environmental load and environmental risks and can contribute to carrying out the TDK Environmental Action 2020 Policy. In addition, lower energy consumption will result in lower expenses. I look forward to TDK developing new growth area in the field of symbiosis with the global environment in the future.



TDK CSR REPORT 2012

English version

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