

IEEE Milestone plaque

1930 *Invention of “Ferrite”*

The electronic material “ferrite” is a unique Japanese invention, born out of research done in 1930 by Dr. Yogoro Kato and Dr. Takeshi Takei of the Tokyo Institute of Technology. Seventy-nine years later, in 2009 the discovery and application of ferrite was designated as an IEEE Milestone, an award that recognizes key historical achievements in electrical and electronic engineering, which have had a sustaining and significant impact on the industry and on society.

1935 *Spirit of Originality*



Kenzo Saito,
TDK's first president

“Genuine industries are original industries”; this pronouncement by Dr. Kato inspired Kenzo Saito to found TDK (originally known as Tokyo Denki Kagaku Kogyo K.K.) with the purpose of turning ferrite into a commercial product. At the time, ferrite was still an unknown quantity, and its first application was a so-called “ferrite core.” In 1937, before coming into use in other countries, ferrite cores became part of wireless transmitters and radios in Japan. The spirit of “creating value that does not yet exist in the world on a material level” has characterized TDK from the beginning, and it still defines the DNA of the company today.

MAGNETICS TECHNOLOGIES

A

Magnetics Technology

Ferrite—An original Japanese magnetic material, while pursuing and expanding the possibilities of ferrite, TDK's own scope of activities grew ever more varied, advancing with ferrite into various sectors of the industry. Magnetic tape technology that dramatically altered the patterns of musical enjoyment, fine multilayering technology that resulted in much smaller and lighter electronic devices, HDD magnetic head technology that produced astoundingly high data recording densities—these are some of the TDK innovations that have had a lasting worldwide impact. The history of TDK is closely interwoven with magnetics technology. By continuously improving, perfecting, and innovating in this field, TDK continues to bring forth extraordinary and unique products.



Magnetic tape

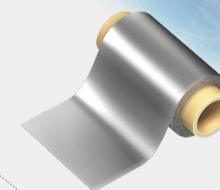


HDD magnetic head

Magnetics technology leads to improvement in product performance

High permeability IFL16 noise suppression sheet

This magnetic shielding material used in electronic components in smartphones and similar devices is made of a magnetic material combined with resin. A magnetic sheet capable of absorbing the noise of a wide frequency range and turning it into thermal energy is highly useful, both for preventing internally produced noise from being reflected and affecting other components inside a device and from leaking outside the device and affecting other devices.



STRENGTH

The driving factor behind TDK's product power is superior materials technology. Shaping the characteristics of the material at the atomic level makes it possible to achieve exactly the targeted properties for a given product. This approach requires mastery of complex composition processes and control of additives which cannot be easily copied by competitors. By keeping intellectual property and know-how in-house, we are establishing a competitive advantage.

Materials Design Technology

Materials Technology

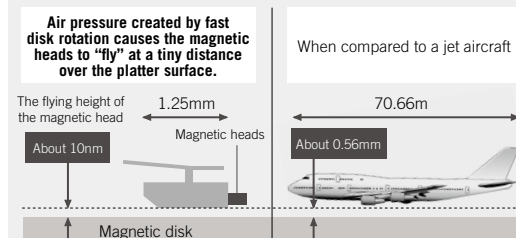
Powder Control Technology

Microstructure Control Technology

STRENGTH

TDK's famous process technology can be defined as the art of realizing products that maximize the characteristics of the raw materials used in them. Operating on the nanometer level, the technology has enabled breakthrough developments such as chip capacitors and chip inductors with amazingly small dimensions and low profiles. TDK process technology is a versatile key competence that meets a multitude of advanced needs.

Amazing HDD magnetic head technology



In order to read and write the information in a very small area of the disk, the head must approach the surface at an extremely close limit but without making contact. The clearance between the head and the disk is less than 10 nanometers, which could be compared to a large passenger jet flying at only 0.56 millimeters above the ground.

Sintering Technology

Forming Technology

Process Technology

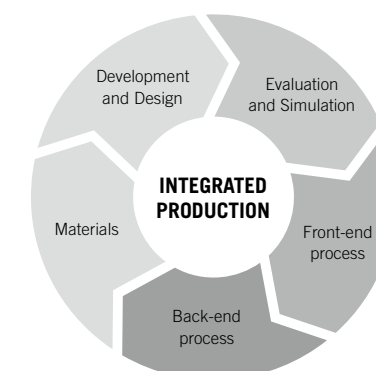
Thin-Film Process Technology

Thick-Film Process Technology

Monozukuri Power

STRENGTH

TDK handles the *Monozukuri* process of manufacturing in a unified in-house framework, ranging from materials to the final product. One of the reasons why TDK's spirit of craftsmanship oriented manufacturing, i.e., *Monozukuri*, works so well is the fact that we develop our own methods and then build the equipment to implement them. In order to create products that truly meet the demands and expectations of customers, we have established optimized processes for materials composition and we develop and design products based on thorough materials analysis, as well as simulation analysis of such aspects as structure, heat, electromagnetic fields, among others. At the same time, we also establish an optimized framework for mass production.



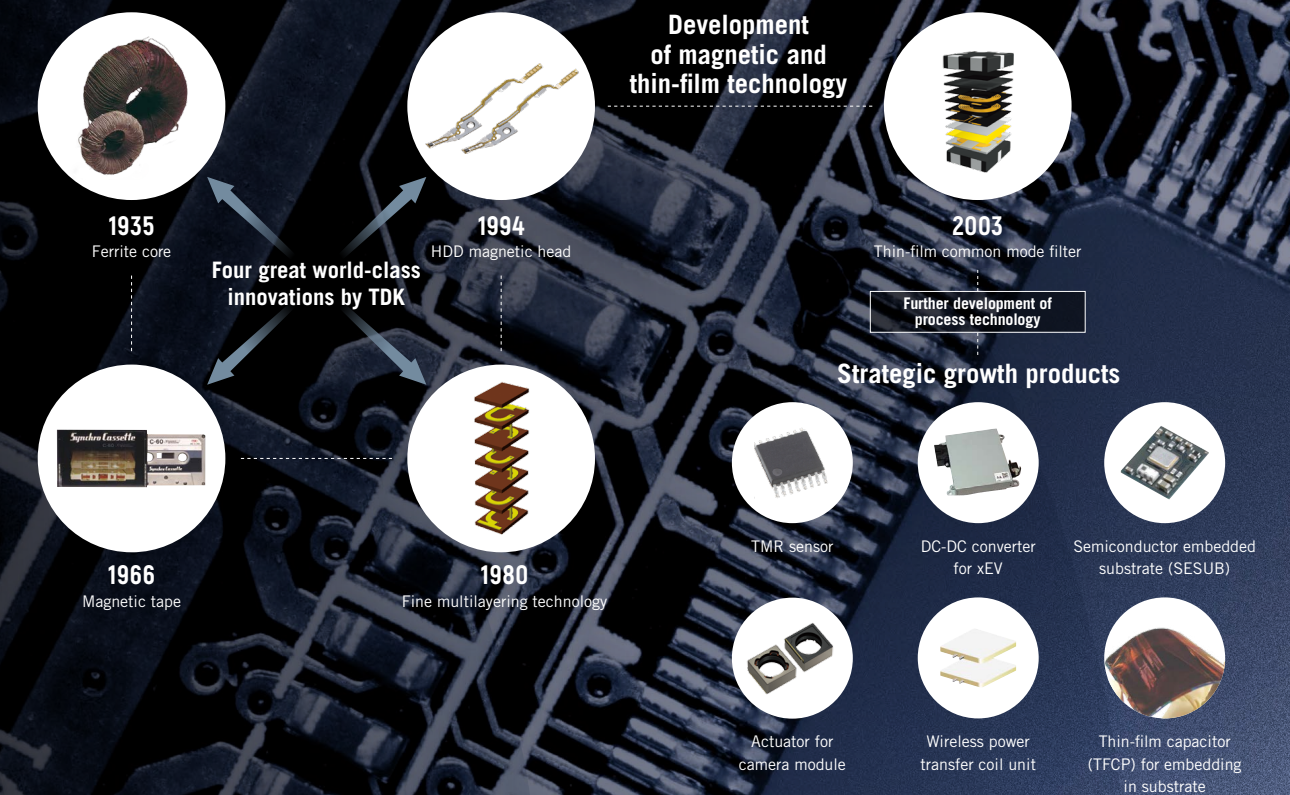
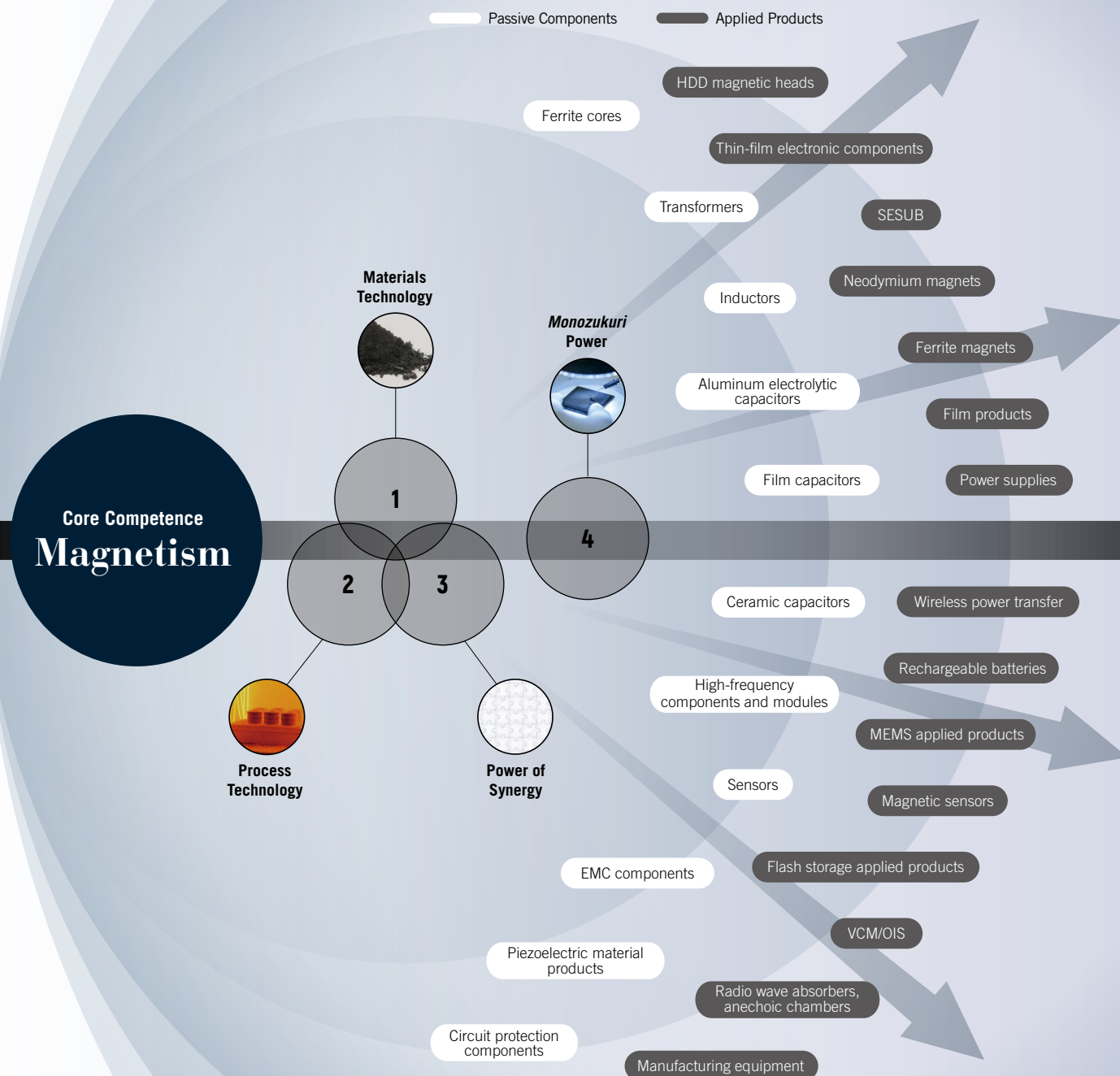
STRENGTH

TDK has absorbed and integrated various technologies and value on a global scale. We consider acquired companies as valuable partners to whom we actively give the leading initiative for technology development in their areas of expertise. This complements our own resources and expertise, opening up new avenues of sustained growth and strengthening both sides through the power of synergy. That is the rationale behind our M&As and technology alliances on a global level.

Representative Acquisitions and Strengthened Business Fields

1986	SAE Magnetics (Hong Kong)
2000	Headway Technologies (USA)
2003	Innoveta Technologies (USA)
2005	Amperex Technology (Hong Kong)
2005	Lambda Power Group (United Kingdom)
2007	Magnecomp Precision Technology (Thailand)
2008	EPCOS (Germany)
2016	Micronas Semiconductor (Switzerland)
2016	Hutchinson Technology (USA)

Tireless Innovation through Application and Diversion



INNOVATION

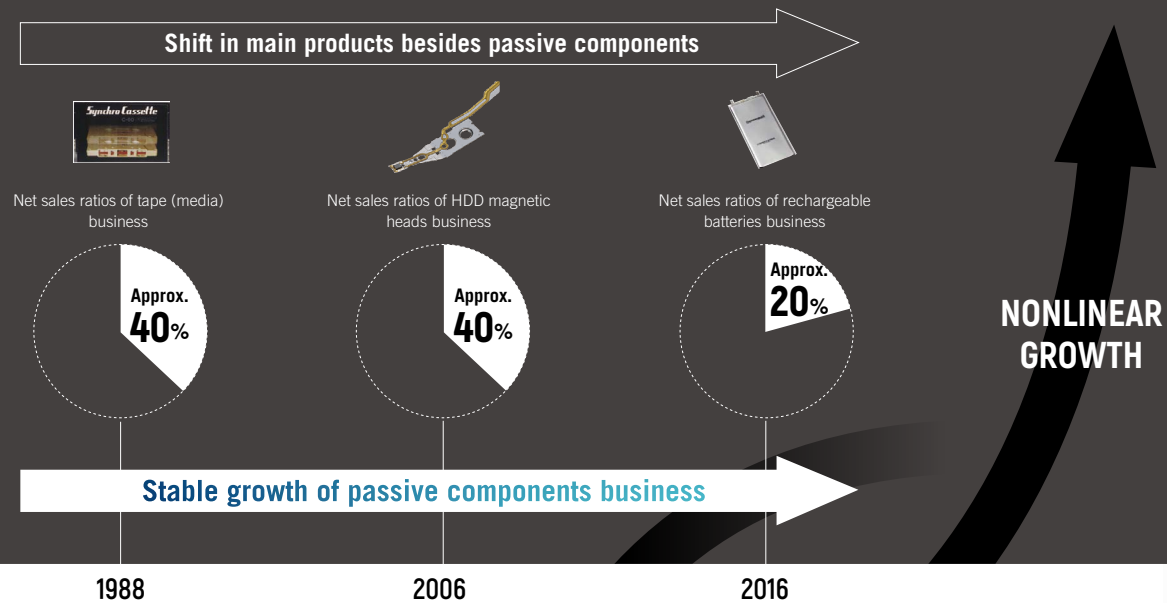
MAGNETICS TECHNOLOGIES

Using its core competence in magnetics technology as an axis, TDK has been harnessing materials technology for shaping the characteristics of a material already at the atomic level, in conjunction with process technology that maximizes its potential. This has enabled us to consistently deliver products at the leading edge of technology. Taking aboard ideas under the “Industry 4.0” concept and combining them with our zero defect quality approach that uses upstream management to eliminate quality variations, we are further strengthening our *Monozukuri* power.

The pace of change in the electronic components industry is very rapid. To remain competitive in this field, a company needs to continuously evolve and innovate. Looking toward the future, TDK will leverage its core competence in magnetics for the development of next-generation technology, and we will further elevate the sophistication level of our integrated production to ensure utmost reliability. In this way, we will continue to deliver products that contribute to the evolution of society.

Our Past Nonlinear Progress

In the rapidly evolving world of electronic components, simply doing “business as usual” is out of the question. Aiming to contribute to society and create true value, TDK has devised various strategies and tackled a number of difficult challenges so far. Guided by a long-term and environment-oriented perspective, we have continued to vary our business portfolio to meet the needs of the times. Accordingly, our key products also underwent significant changes along the way.



Ongoing Governance Reform

Number of Foreign Corporate Officers

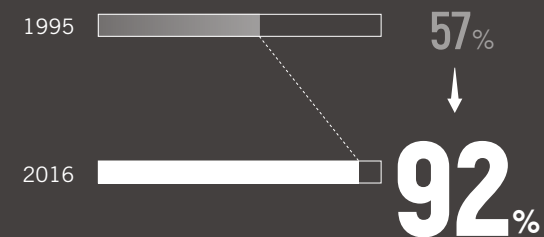


Number of Outside Officers

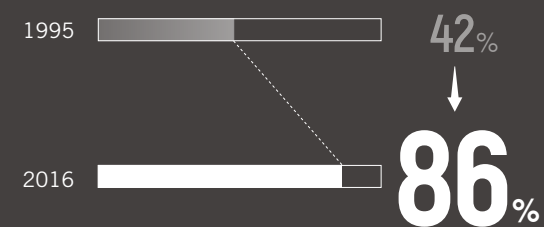


High Level of Globalization

Overseas Sales Ratio



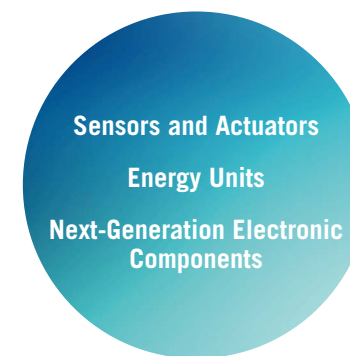
Overseas Production Ratio



Nonlinear Progress to Come

In anticipation of the coming IoT society, we are building a strategic portfolio centered around the development of “sensors and actuators,” “energy units,” and “next-generation electronic components.”

Demand for HDD magnetic heads, which used to be a driver for TDK’s growth, is currently stagnating and the smartphone market has also matured. The creation of new areas of business therefore is paramount. We will be aggressively expanding our activities in the automotive and industrial equipment and energy markets. We intend to reach or surpass the goals set for the fiscal year ending March 2018, boosting both the operating income ratio and ROE by at least 10% each, as we advance toward the 100th anniversary of the company in 2035.



Recent major M&As and business alliances with a view toward the IoT market

- Business alliance with Qualcomm Incorporated (USA), and agreement to establish joint venture company RF360 Holdings Singapore Pte. Ltd.
- Acquisition of Micronas Semiconductor Holding AG (Switzerland)
- Acquisition of Hutchinson Technology Inc. (USA)
- Agreement to take over the Tsuruoka Factory of Renesas Semiconductor Manufacturing Co., Ltd.
- Acquisition of Tronics Microsystems SA (France) announced
- Joint venture with Advanced Semiconductor Engineering, Inc. (Taiwan) established
- Business cooperation with Trigen Semiconductor, Inc.

MAGNETICS TECHNOLOGIES

IoT Market

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.

Cautionary Statements with Respect to Forward-Looking Statements

This report contains forward-looking statements, including projections, plans, policies, management strategies, targets, schedules, understandings, and evaluations about TDK and/or its group companies (“TDK Group”). These forward-looking statements are based on the current forecasts, estimates, assumptions, plans, beliefs, and evaluations of the TDK Group in light of information currently available to it, and contain known and unknown risks, uncertainties, and other factors. The TDK Group therefore wishes to caution readers that, being subject to risks, uncertainties, and other factors, the TDK Group’s actual results, performance, achievements, or financial positions could be materially different from any future results, performance, achievements, or financial positions expressed or implied by these forward-looking statements, and the TDK Group undertakes no obligation to publicly update or revise any forward-looking statements after the issue of *Annual Report 2016* except as provided for in applicable laws and ordinances.

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Editorial Policy
Annual Report 2016 provides financial data, including information on business results, business and marketing activities, the Medium-Term Plan, and related topics. In addition, it also contains general information on environmental (E), social (S), and governance (G) topics. For further information on financial topics not covered here, as well as on corporate social responsibility (CSR) related topics, and for product information, please visit the TDK website.

Financial Information

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



Investor Relations (IR)

- Securities Report
- Quarterly Financial Statements
- Operational Risks

Non-Financial Information

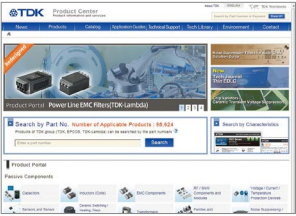
<http://www.global.tdk.com/csr/>



- TDK CSR REPORT 2016
- CSR Activities

TDK Product Information and Services

<https://product.tdk.com/info/en/index.html>



Product Center

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