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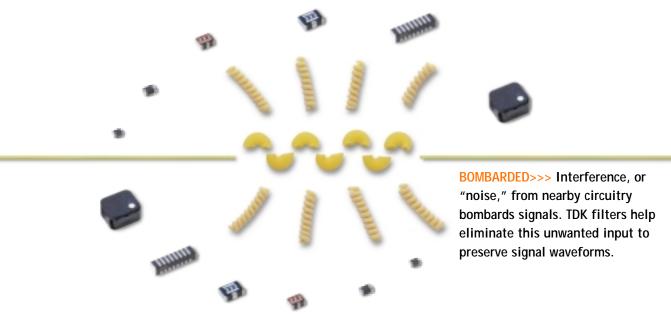


annual report 2000 e-material solution provider TDK Corporation

# Signals Crossed?



ALL SIGNALS ARE BORN AS STRAIGHT AND SIMPLE AS RAW SPAGHETTI. BUT THEY ENCOUNTER MANY OBSTACLES ON THE WAY TO THEIR FINAL DESTINATION. TDK'S ELECTRONIC COMPONENTS PROTECT AND ASSIST SIGNALS ON THIS JOURNEY, ENSURING THAT THE ULTIMATE DESTINATION IS REACHED. BEGINNING WITH THE FISCAL YEAR ENDED MARCH 31, 2000, TDK REVISED ITS CATEGORIES FOR REPORTING SALES AND RENAMED TWO PRODUCT SECTORS. AS A RESULT, THE FORMER MAGNETIC PRODUCTS SECTOR IS NOW CALLED ELECTRONIC MATERIALS AND THE FORMER CERAMIC AND ASSEMBLED COMPONENTS SECTOR IS NOW CALLED ELECTRONIC DEVICES. THE MOST SIGNIFICANT RECLASSIFICATION WAS THE SHIFT OF MULTILAYER CHIP CAPACITORS TO ELECTRONIC MATERIALS. RESULTS IN THE PRIOR YEAR HAVE BEEN REVISED TO REFLECT THESE CHANGES.



## ELECTRONIC MATERIALS

Sales in the electronic materials sector increased 12.6 percent to ¥174,897 million. Multilayer chip capacitors, which account for more than half of this sector, posted a substantial increase in sales. Growth was propelled by much higher demand from manufacturers of PCs and mobile phones. During the year, TDK made substantial investments to expand output capacity. As a result, monthly production capacity rose from approximately 5 billion units in the spring of 1999 to 7 billion in the fall. By the spring of 2000, this figure had climbed to 8.5 billion.

review of operations

Sales of ferrite cores were lower. These cores are mainly used to strengthen magnetic energy in transformers and inductors. Protecting signals from electromagnetic interference and "noise" is another important application. During the past year, orders for small noise-reduction cores surged, but currency movements and price cutting held back sales. Competition also pushed down sales of deflection yoke cores and flyback transformer cores, both key components in television sets.



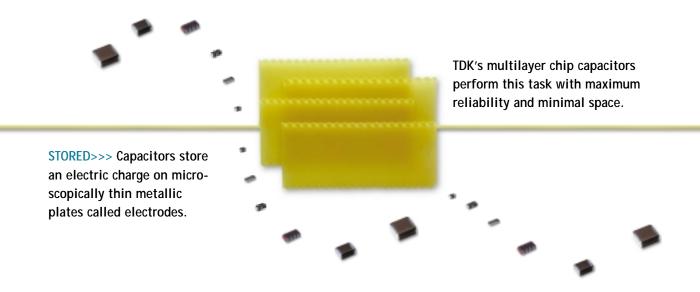
Sales of ferrite magnets also declined. Unit volume was higher, chiefly due to orders from manufacturers of small motors used in automobiles and office equipment. However, these gains were offset by the yen's strength and a decline in sales prices.

In metal magnets, sales were only slightly higher as falling prices negated most of the year's growth in volume. TDK is benefiting from the expansion in the applications for these high-performance magnets. Manufacturers are increasingly turning to metal as they seek ways to cut product size and weight without sacrificing performance.

#### ELECTRONIC DEVICES

Growth in most product categories lifted sales in this sector 7.4 percent to ¥129,025 million. The largest product category is inductive devices, which mainly represents EMC (noise reduction) products, inductors (coils) and transformers. Sales of inductive devices were largely unchanged. Increases in EMC products for PCs and inductors for PCs and mobile phones were offset by a decline in sales of assembled deflection yoke cores and transformers.

High-frequency components, on the other hand, posted a sharp increase. Orders from mobile



phone companies surged, especially from European manufacturers, lifting demand for such TDK components as isolators and filters. The introduction in Europe of dual-band mobile phones, which require more circuit components, was one reason. During the year, TDK unveiled a front-end module that contains many of the key signal reception components used in a mobile phone. This breakthrough is expected to start contributing to sales during fiscal year 2001.

In sensors and actuators, sales were much higher. Pacing results was rising demand for chip NTCs, a semiconductor temperature sensor whose electrical resistance varies with ambient temperature.

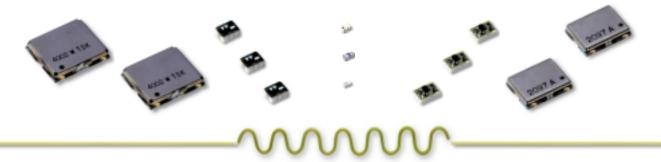
The fourth category, power systems, achieved a healthy gain in sales. Performance was

review of operations

supported by a big jump in orders of DC-DC converters, devices capable of converting one DC voltage into another. Hand-held game units were a major source of growth. One important development was the start of sales of DC-DC converters for hybrid automobiles.

# RECORDING DEVICES

Several forces combined to bring down sales of recording devices by 4.2 percent to ¥200,748 million. Amid rapid advances in technology, TDK maintained its leadership in the HDD head

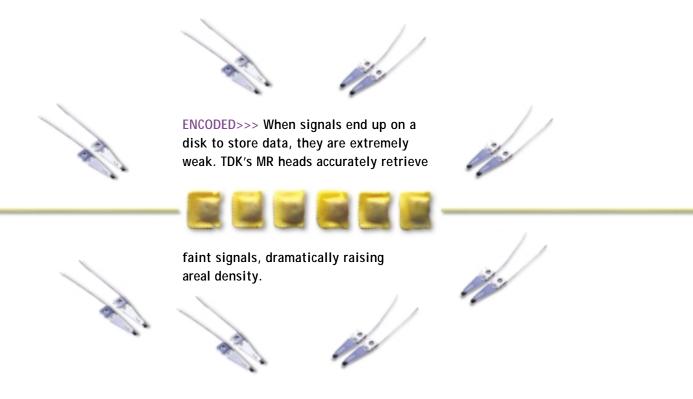


**GIGA-HERTZED**>>> Mobile phones and digital circuitry employ signals at frequencies often measured in gigahertz. TDK's high-frequency components ensure that these signals reach their destinations intact.



market by introducing and quickly raising output of GMR heads. However, the annual rate of increase in HDD head areal density has accelerated to about 100 percent. Demand for heads thus were well below expectations as HDD makers needed fewer heads per drive to achieve the necessary recording capacity. Exerting more pressure on head sales were weak operating results at many HDD makers, resulting in strong demands for reductions in head prices.

TDK is continuing to take the steps needed to remain at the forefront of the HDD head market. By March 2000, most HDD head output had been switched to GMR technology, which is capable of delivering the highest areal density available today. Sales of a next-generation GMR head have already begun. Furthermore, TDK plans to begin shipping samples of magneto-resistive tunnel-junction heads (TMR), which achieve an even higher areal density, late in 2000. In March 2000, TDK acquired Headway Technologies, Inc., a GMR head company based in California. Gaining access to this company's GMR expertise and research team will further strengthen TDK's position as the world's preeminent supplier of HDD heads.



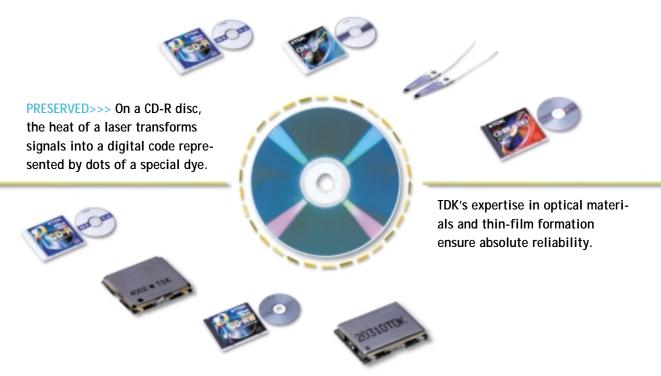
## SEMICONDUCTORS AND OTHERS

Sales in this sector were down 4.3 percent to ¥27,305 million. PC modem card demand continues to soften as more PCs are assembled with internal modems. Semiconductor-related sales were higher. TDK Semiconductor Corp., which is located in California, had considerable success in designing communication ICs for LAN and set-top box applications. In September 1999, TDK Semiconductor became a major shareholder of Vertex Networks Inc. Tapping the knowledge of this partner will allow TDK to expand its business in ICs for high-speed, multi-functional LAN and WAN requirements.

review of operations

# RECORDING MEDIA

Declining demand for audiotapes and falling sales prices of optical disks brought down recording media segment sales by 12.5 percent to ¥142,489 million. In audiotapes, the long-term decline in global demand continued due to the rising popularity of optical media. At TDK, the past fiscal year marked an historic milestone as its optical media sales exceeded audiotape results for the first time. Videotape sales decreased. Volume was generally unchanged but foreign exchange



movements and price-cutting reduced sales. Mini DV (digital video) cassettes performed well and TDK raised production capacity in response.

Optical disk sales increased as TDK recorded dramatic growth in sales volume. Driven by the rising number of CD-R disc applications, demand for these discs continues to skyrocket. TDK moved quickly to add production capacity. The resulting increase in volume enabled TDK to offset the impact of a strong yen and falling sales prices to generate higher sales. MD sales decreased slightly from the prior fiscal year; higher sales volumes in Japan and Europe were offset by lower prices. The DVD is currently gaining widespread acceptance as a next-generation optical medium. TDK is fully prepared to manufacture DVD-RAM, DVD-R/RW and other types of DVDs in quantity as demand grows.

# **Perfection!**



COMPLEX AS THEY ARE, TDK'S COMPONENTS FULFILL A SIMPLE ROLE: MAKING SURE THAT A SIGNAL CREATES THE DESIRED END PRODUCT.