

RESEARCH AND DEVELOPMENT

THE R&D ORGANIZATION

With an R&D organization that dates back to 1922, Daido Steel has been performing research in the field of specialty steel for more than eight decades. Today, the Research and Development Laboratory is the nucleus of this organization, which conducts work covering a broad range of sophisticated themes.

In fiscal 2005, non-consolidated research and development expenditures, which include the production of prototypes by factories, totaled ¥5.7 billion. In fiscal 2006, we plan to significantly raise this figure to ¥7.5 billion. Growth in the R&D budget reflects the increasing need to perform research to produce high-performance, value-added products that can meet the requirements of our customers.

We are focusing on technologies that target a number of key themes. One is the need for greater precision to make products that are smaller with higher performance. Other themes are environmental protection and safety for automobiles and industrial machinery. R&D programs are focused on the fields of electronic materials, technologies to protect the environment and conserve energy, and automotive materials. Our goal is to develop next-generation technologies and products.

R&D TARGETS IN THE MEDIUM-TERM MANAGEMENT PLAN

Accelerating the development and commercialization of new technologies is a central goal of the 2008 medium-term plan. To support this more aggressive stance, we plan to raise the non-consolidated R&D budget during the course of the plan to ¥14.5 billion, an increase of 50% compared with the 2005 medium-term plan. At the Research and Development Laboratory, plans call for an increase in personnel from 207 to 227 between April 2006 and March 2009. Additionally, in a move to bolster research based on a long-term perspective, we established the Next Decade Research Center in 2005.

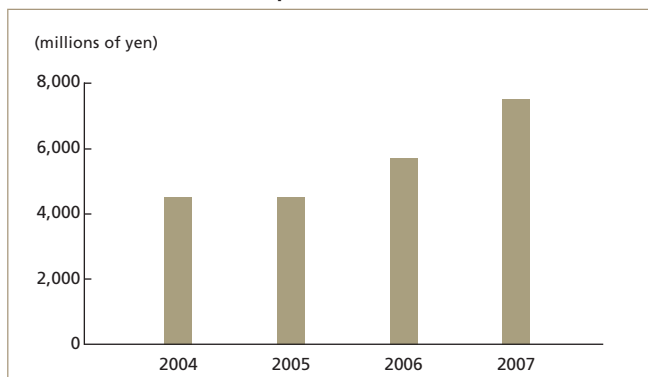
Development programs focus on three fields: products with excellent growth prospects; "number-one products" backed by exclusive Daido Steel technologies; and next-generation "future number-one products." In fiscal 2005, ending March 2006, number-one products generated sales of ¥163 billion. Our goal is to raise this to ¥200 billion in fiscal 2008, ending March 2009. Many product sectors offer opportunities for number-one positions. One is forged products used in aircraft, ships and automobiles. Others are magnetic materials, turbocharger parts, and high-performance materials like titanium and sintered products.

RESEARCH AND DEVELOPMENT RESULTS AND FORECASTS

SPECIALTY STEEL

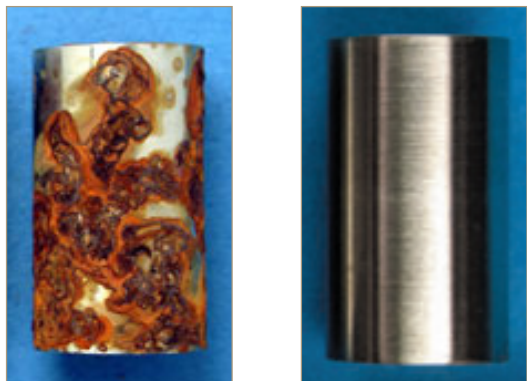
Becoming more competitive and making new products are the main objectives of specialty steel research. R&D covers all aspects of the specialty steel business. Engineers develop structural, heat- and corrosion-resistant, tool, welding and other types of materials. Research also covers process innovations for manufacturing and quality assurance, analytic technology and many other fields. Specialty steel R&D expenditures for the year under review were ¥1,741 million.

Non-consolidated R&D Expenditures (Years ended March 31)



Key Achievements During the Year Under Review

- ❖ **High-nitrogen stainless steel with world-leading corrosion resistance**
Using its exclusive pressurized induction melting process, Daido Steel has devised a technology to make stainless steel with high nitrogen content, thus raising both hardness and corrosion resistance. This new type of steel has the world's highest level of corrosion resistance while preserving the same level of toughness as conventional high-hardness steel. Potential applications are plentiful, including marine structures, automobiles and other transportation equipment, IT products, and aerospace. Prospective users received the first samples in the fall of 2005. We expect this material to generate sales of ¥500 million in fiscal 2007, ending March 2008.



Results of salt spray test under identical conditions
Left: Conventional steel (full rust corrosion)
Right: Newly developed steel (no rust corrosion)

PARTS FOR AUTOMOBILE & INDUSTRIAL EQUIPMENT

Automakers are calling for engine, transmission and other components with more strength and less weight to improve the performance of automobiles. R&D in this category also serves the needs of industrial machinery manufacturers. Using its many years of experience both in alloy design, and in heat treatment, surface finishing and other technologies needed to make parts, Daido Steel is constantly creating materials with new properties. Fiscal 2005 R&D expenditures in this segment totaled ¥534 million.

Key Achievements During the Year Under Review

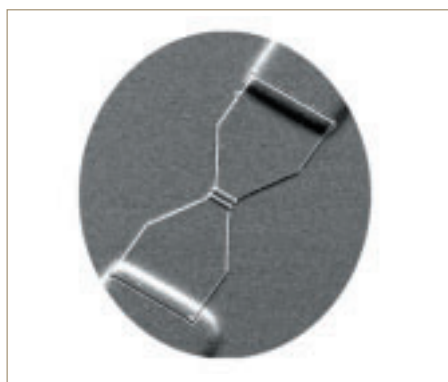
- ❖ **The DAINUS digital engineering system**
Our DAINUS simulation system makes it possible to predict the service life of a metal mold. DAINUS, which stands for Daido Numerical Process Engineering System, produces highly accurate forecasts after a mold has been processed thanks to a database built over a number of years. DAINUS has already proven its worth at our Shibukawa Plant, where it calculated the capabilities of a 7,000-ton press to be installed at the plant. The system also assisted design processes for cold forged components at the Chita Die Forging Plant.

ELECTRONIC AND MAGNETIC MATERIALS

Work on new products and technologies in this field is aimed at keeping up with rapid progress in materials for electronics and other IT applications. Magnetic materials and communications and environmental products are major areas of activity. In this segment, fiscal 2005 R&D expenditures totaled ¥500 million.

Key Achievements During the Year Under Review

- ❖ **GIG magnetic sensors**



GIG sensor

These sensors are the product of a joint research with the Research Institute for Electric and Magnetic Materials. Nano-Granular-In-Gap (GIG) sensors have more than three times the sensitivity of conventional magneto-resistive

(MR) sensors, but reduce the size of the magnetic sensor element by 90% and power consumption by 99%. With these advantages, the GIG sensor is ideal for radial magnetic sensors and other industrial applications that demand high sensitivity together with low power consumption. We are currently investing in production equipments and providing samples for evaluation tests to potential customers. We plan to begin sales of the GIG sensor in 2007.

ENGINEERING

Research in this segment covers recycling and other environmental systems, energy-efficient industrial ovens and other fields. Fiscal 2005 R&D expenditures totaled ¥15 million.

Key Achievements During the Year Under Review

- ❖ Daido steel begins using vacuum carburizing technology



Vacuum Carburizing Furnace

In the year under review, Daido Steel began operating a prototype furnace on a commercial scale that uses the vacuum carburizing technology of ALD Vacuum Technologies AG of Germany. We are using this furnace to develop our own vacuum carburizing technology, create new materials, improve production facilities and develop highly accurate simulation technologies. We plan to use these advances to begin supplying carburized steel products to manufacturers of automobile parts.

NEW MATERIALS

Daido Steel is developing functional powders, titanium alloys and other types of new materials. R&D expenditures in fiscal 2005 totaled ¥783 million.

Key Achievements During the Year Under Review

- ❖ Titanium wire (G-coat) for MIG welding



G-Coat

Daido Steel has developed a specially coated titanium welding wire called G-coat. This wire can be used with the MIG (metal inert gas) welding method, which is more efficient than conventional welding methods. We expect a growing number of companies to adopt this new welding wire.