RESEARCH AND DEVELOPMENT

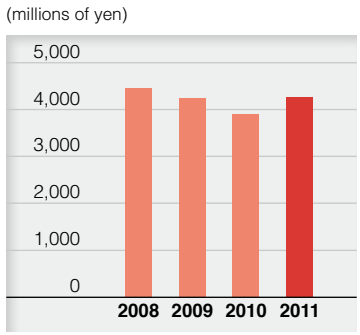
The Daido Steel Group's basic management policy is to leverage its advanced technology capabilities in specialty steel to "foster a corporate culture of creativity and originality that contributes to the 21st century society." Based on this policy, the Group conducts a proactive program of R&D to expand new products and businesses and strengthen the foundations for existing businesses.

Currently, we are pursuing R&D for new products, materials and technologies, primarily through the Daido Corporate Research & Development Center, which houses the Special Steel Research Lab, Electromagnetic Materials Research Lab, Process Technology Development Center, and Business Development Center. We employ a total of 298 researchers throughout the Daido Steel Group.

R&D expenses for the Daido Steel Group during the fiscal year under review amounted to ¥4,253 million. An explanation of our R&D efforts by segment, including purpose, major achievements, and expenditures follows.

R&D EXPENDITURES

Years ended March 31



(1) SPECIALTY STEEL

In this segment, the Daido Steel Group conducts R&D covering all aspects of the specialty steel field, including development of such basic specialty steels as structural steel for automobiles, heat and corrosion-resistant steel, tool steel and welding materials, as well as process innovations ranging from steelmaking to quality assurance.

R&D expenditures in this segment during the fiscal year under review amounted to ¥1,767 million. The following are some of our major achievements in this area:

Major Achievements

• High-nitrogen stainless steel

Nitrogen is an effective element for increasing the strength and corrosion resistance of stainless steel. Due to its gaseous form, however, there are limits to the amount of nitrogen that can be added to steel. Using a pressurized induction melting furnace capable of melting and casting under high-pressured nitrogen of 20 atmospheres, Daido Steel has developed several kind of stainless steel with a level of nitrogen content higher than that possible under conventional methods. These kinds of steels, which possess outstanding strength and corrosion resistance, are already used in such applications as wire for interdental brushes and dies for resin injection moldings. Going forward, we expect high-nitrogen stainless steels to be used in a wide variety of applications, such as bearings, knives, medical tools, and offshore plants.

Hot work die steel "DHA-World"

The metal molds used in die casting and hot forging—processes that are in turn employed mostly in manufacturing automotive parts—must be inexpensive to manufacture but also have a long life. In order to better meet those needs, we sought to find the optimal alloy composition and, drawing fully upon our manufacturing technologies, developed "DHA-World," a definitive solution for hot work die steel. In spite of being produced through an atmospheric melt process, DHA-World has physical properties nearly equal to those generated by the special melting (Electro Slag Remelting) process, which uses large amounts of rare metals. In addition to excellent machinability, it also results in lower manufacturing costs for metal molds. DHA-World also has high hardenability, allowing high toughness even in larger dies. The molds thus manufactured accordingly have high fracture toughness and durability. We have recently been ramping up overseas production of metal molds, but have been hampered by a dearth of infrastructure for heat treatment and insufficient skill levels. We are hopeful that DHA-WORLD's superior hardenability will help in overcoming these challenges.

(2) ELECTRONIC & MAGNETIC MATERIALS

In this segment the Daido Steel Group conducts R&D focusing on developing high-grade strip steel and magnetic materials and solar power generation systems. Magnet research is carried out principally by the Company and its consolidated subsidiary, Daido Electronics Co., Ltd.

Total segment R&D expenditures for the fiscal year under review amounted to ¥311 million. The following are some of our major achievements in this area:

Major Achievements

• Dysprosium-less radially anisotropic Nd-Fe-B ring magnet with world-leading performance

The Daido Steel Group has developed two radially anisotropic Nd-Fe-B (neodymium iron boron) ring magnets, "ND-43SHR" (maximum energy product: 43MGOe) and "ND-39SHR"

(maximum energy product: 39MGOe), both combining high magnetic force with a high degree of heat resistance. These magnets offer world-leading levels of magnetic force and heat resistance with only half the volume of the expensive rare earth dysprosium (Dy) used in sintered Nd-Fe-B magnets, by virtue of a newly developed hot extrusion process that produces nano (one-millionth of a millimeter)-size crystal particles with the highest level of radial orientation. Daido Electronics began sample shipments in fall 2010, primarily targeting the growth market of automotive EPS (electric power steering) systems, but also envisioning use in various automobile motors, industrial servo motors, and motors incorporated in office equipment and home appliances.

(3) PARTS FOR AUTOMOBILE & INDUSTRIAL EQUIPMENT

In this segment, the Daido Steel Group conducts R&D for engine valves and various other automobile components, as well as for a range of parts for industrial machinery.

Total R&D expenditures in this segment for the fiscal year under review amounted to ¥564 million. The following are some of our major achievements in this area:

Major Achievements

- **Development of machining technology for difficult-to-cut materials**

Heat-resistant steel, highly corrosion-resistant steel, and nickel-based super alloys are extremely difficult to cut with lathes, drills and other machining equipment. These materials are widely used in such applications as vehicle turbo systems for the transportation and energy fields, engine parts for aircraft and ships, fossil fuel drilling equipment, and turbine blades for power generation. In each of these areas demand has increased year by year, underscoring the need for a technology supporting more efficient cutting and manufacturing. Daido Steel has developed a technology that more than doubles the processing efficiency of conventional methods, and has begun adapting this technology for use in manufacturing the aforementioned items. We plan to further refine this technique to achieve even greater machining efficiency, enabling us to boost capacity to meet growing demand and moreover reduce costs.

(4) ENGINEERING

In this segment, the Daido Steel Group's R&D programs mainly focus on environmental conservation and recycling equipment and on a variety of energy-saving industrial furnaces.

R&D expenditures of the segment for the fiscal year under review totaled ¥71 million. The following are some of our major achievements in this area:

Major Achievements

- **Fuel-efficient sewage sludge carbonizing process for producing biomass fuel**

Daido Steel's sewage sludge carbonizing system, developed in collaboration with the Japan Sewage Works Agency, has already been introduced at five facilities. Based on this technology, in 2006 we independently developed an improved process for carbonizing sewage sludge to produce biomass fuel. Since last year we have made further improvements to this system, developing an extremely fuel-efficient process that makes maximum use of the heat from the processed sewage and requires almost no fossil fuel supplementation. We are currently seeing a rapid rise in use of sewage sludge as biomass fuel, and we anticipate growing sales for this system in its capacity as an environmentally friendly technology helping to prevent global warming.

(5) NEW MATERIALS

The R&D of the new materials segment concentrates mainly on such new materials as functional powder metals and titanium products. R&D expenditures in this segment for the fiscal year under review amounted to ¥1,538 million. The following are some of our major achievements in this area:

Major Achievements

- **Thin-film deposition target material for use in manufacturing next-generation memory**

DRAM and SRAM are currently used in computers and other IT equipment, but are nearing the limits of their processing capacity as such equipment becomes increasingly sophisticated and structurally refined, because of high power consumption. Against this backdrop, work is under way around the world to develop MRAM and other nonvolatile, next-generation memory. Daido Steel has developed a method for manufacturing high-purity target materials, using uncontaminated powder manufacturing technology. By controlling impurities introduced during the melting to machining stage of the production process, and processing under optimal conditions we are able to produce target materials offering uniform composition, high density and low gas content.