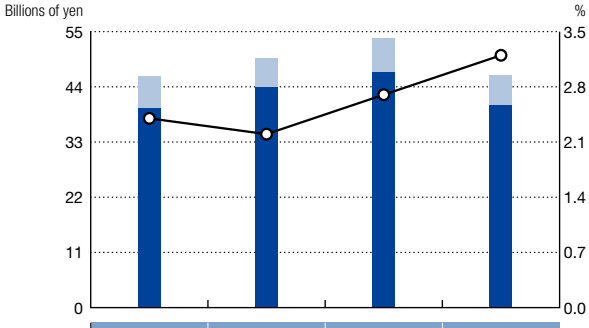
Research and Development

Policy and Organization

Komatsu is actively engaged in research and development activities for new technologies, new products and new services consistent with its commitment to provide “Quality and Reliability.” Komatsu’s research and development activities are conducted by various groups within Komatsu. With respect to the Construction, Mining and Utility Equipment operating segment, the Research Division and the Development Division as well as development centers that focus on construction, mining and utility equipment are involved in research and development activities. The Industrial Machinery Division and the technology departments of Komatsu’s subsidiaries and affiliates are responsible for research and development activities relating to the Industrial Machinery and Others operating segment.

R&D expenses and their ratio to sales amount



	2007/3	2008/3	2009/3	2010/3
Construction, mining and utility equipment	39.7	44.0	47.0	40.3
Industrial machinery and others	6.5	5.6	6.7	6.0
Percentage of net sales	2.4	2.2	2.7	3.2

Note: Starting in the fiscal year ended March 31, 2009, Komatsu changed its business segments, and thus some figures for the fiscal years, ended March 31, 2008 and 2007, are presented after reclassifying according to the new segmentation.

Approaches

Construction, Mining and Utility Equipment

In order to develop construction, mining and utility equipment that can be used in various parts of the world, Komatsu has established research and development centers in Japan and overseas and has encouraged joint research and development programs as well as personnel exchanges. With the goal of assisting its customers improve their productivity, Komatsu’s medium- and long-term research and development objectives are as follows.

< To make advancements in the use of information and communication technology (ICT) >

Komatsu has been engaged in the research and development of ICT, (which enables remote management of equipment by obtaining information regarding machine locations, operating conditions and vehicle health, via state-of-the-art GPS, remote sensing and telecommunication technologies), control technology and artificial intelligence. Equipment with control systems and management systems using these technologies has been rapidly penetrating the construction and mining equipment market. Komatsu is striving to achieve the complete automation of its equipment. Komatsu has made advances in ICT construction to the next stage from the perspective of the customer.

< To increase the environmental friendliness of its products >

Komatsu has made advances in research and development relating to energy conservation, component recycling and reuse, and the evaluation of environmental impact through lifecycle assessment techniques based on the belief that it is possible to reduce environmental impact while achieving economic efficiency. In particular, in recent years, Komatsu’s first priority in research and development has been to develop technology to reduce fuel consumption by its machines, which leads to both CO_2 emission reduction and economic benefits to customers. Komatsu introduced the world's first hybrid hydraulic excavator on the Japanese market and then the Chinese market. Komatsu is also making preparations for its diesel-engine machines to meet the stringent clean-air standards phased in by Japan, the US and the EU starting in 2011. Komatsu is continuously seeking to develop new technology for cleaner exhaust gas to meet stricter emissions standards that are to become effective in the future. In addition, Komatsu has worked to improve the working conditions for machine operators by improving safety measures and reducing noise and vibration levels of its machines. In the business of forklift trucks, Komatsu Utility Co., Ltd. has introduced 2-and 3-ton series of diesel engine models on the Japanese and overseas markets.

Industrial Machinery and Others

In the field of large presses, Komatsu has focused on developing functional enhancements of AC Servo press in response to the customers’ growing need for production cost reduction. With respect to sheet-metal machines, Komatsu Industries Corporation developed 100Kw plasma power source having the world's best output, and has released the large TWISTER type TFPL-Blade, capable of high-speed high precision cutting of mild steel up to 50mm thickness. With respect to small AC Servo presses, sheet-metal machines, laser cutting machines, Komatsu Industries has developed KOMTRAX-equipped models designed mainly to monitor their operating conditions after delivery. With respect to machine tools, Komatsu Machinery Corporation has developed the largest crankshaft milling machine type GPM1600E, and also new milling machine, type GPM250B-2, for automobile engine's crankshaft. Komatsu Engineering Corporation has improved the precision of the Chip ID Marker. For the Chip ID Marker, Komatsu has led the world in development and application of the laser irradiation, which allows customers to physically write manufacturing history on the top surface of individual IC chips on the wafer. KELK Ltd. has promoted the research and development of high-performance temperature control equipment, high-performance thermoelectric module heat exchange units and micro thermo-modules for use in optical communications.