Customer-focused Research & Development

A goal-oriented concentration on advanced research in selected niche areas has been one of the cornerstones of Sandvik's development over the years and the foundation of the Group's leading global position and continued expansion.

Strong concentration on research with particular focus on product development is deeply rooted in the Group. Sandvik invests more in research, development and quality assurance than its competitors. Total expenditures amount to approximately 4% of net sales and totaled SEK 1,900 M in 2003. More than 2,200 employees work in this area, of whom many are specialists with advanced educational backgrounds and skills.

Sandvik Tooling opened a new competence center for materials development in Stockholm during the year. The center develops tool materials for metal-cutting applications. About two-thirds of the employees are development engineers with advanced university and college educations, and 25% have doctor's degrees. Sandvik Tooling in Sandviken also has a center for the design of cutting tools. In addition, the product areas within Sandvik Tooling have resources of their own in different countries, primarily for applications development, most often in cooperation with customers.

Sandvik Mining and Construction, with its broad product range and decentralized structure, has several development centers in Europe and North America. The largest unit is situated in Tampere, Finland where rock excavation equipment is developed, but substantial R&D resources are also situated in Sandviken and Svedala in Sweden, Zeltweg in Austria, Alachua, Florida in the US and several other locations.

Sandvik Materials Technology has one of Europe's largest R&D centers for advanced stainless steels and special alloys in Sandviken, while the Kanthal product area's development work is conducted in a well-equipped laboratory in Hallstahammar, Sweden. The other units in the business area also have complementary resources for research and development. A total of 900 different materials and alloys are included in the program, with customized properties adapted for specific purposes and applications.

STRONG RESULT ORIENTATION

The driving force in Sandvik's R&D is customer value, whereby product development creates added value for the customer. It might be tools that increase industrial productivity, materials for new applications or more effective machinery for increased mining production.

An example of increased customer value is the Rock Pilot system that was developed recently by Sandvik Mining and Construction. The system improves productivity in rock drilling operations under difficult conditions and represents a breakthrough in hydraulic surface drilling. By adapting the drill force to the hardness of the rock, more and straighter holes can now be drilled under extremely difficult geological conditions.

During 2003, the Sandvik Coromant product area of the Sandvik Tooling business area introduced new products in the CoroKey concept that raise productivity levels. New tooling solutions were also presented for multi-task machines, an area characterized by strong growth.

The development of a product offering within high-speed milling and milling applications for aluminum components has made it possible to machine engine components with such close tolerances that the need for gaskets has been eliminated.

Sandvik Materials Technology's new unit for business development, Nova, is a good example of customer value development through focus on advanced, new materials and interesting applications for priority areas. Nova includes materials for the medical-technology industry, Sandvik Bioline®, surface technology products, powder metallurgy and the unique Sandvik Nanoflex® material.

Substantial resources are also invested in development of proprietary production processes to facilitate manufacture of products that offer better performance and have lower production costs.

New products and processes are protected by patents. Sandvik has an aggressive patent strategy and holds a leading position within its areas of business activity. Currently, the Group has approximately 4,300 active patents.

Access to qualified employees is becoming an increasingly important competitive factor. Sandvik is recruiting more highly educated specialists, and its programs of close cooperation with universities and other external research institutes is of great strategic importance. Through efforts to support doctoral studies and other researchers, valuable contacts have been established that facilitate personnel recruitment and create opportunities for various forms of cooperation that enable the Group to capitalize on the expertise and knowledge in the academic world.

DEVELOPMENT AREAS

Within Sandvik Tooling, customer efforts to achieve increased productivity are the driving force behind new and increasingly advanced tooling designs. Materials that are difficult to process are becoming more common and often require new cutting materials. Machining without cutting fluids is also increasing on a growing scale, particularly with regard to environmental considerations. Surface coatings on cutting tools comprising thin layers of various carbides, nitrides and oxides will continue to be highly important and a priority area in future efforts to improve tool performance.

Development work within Sandvik Mining and Construction will continue to focus on increasingly high degrees of automation. Remote control of drill rigs and loaders is becoming a requirement, not only for increased productivity but also for improved work environment conditions. Sandvik is a leading supplier in this area. Other trends include increased mechanical excavation through cutting of harder rock than what was possible in the past.

For the product areas within Sandvik Materials Technology, growing demands are being placed on sophisticated materials with increased temperature and/or corrosion resistance. Special surface treatments are becoming increasingly common. Applications in medical technology are a priority area for Sandvik, in which demands on the purity of materials are high.

The realization that a technological lead in advanced products and processes generates the best growth and profitability both for the customer and Sandvik is the ultimate driving force for the Group's continued investments in R&D.

Sandvik published a well-received series of advertisements in 2003 highlighting how the Group's R&D assists customers in improving their productivity and becoming more competitive.