

R&D AND NEW PRODUCT DEVELOPMENT

Guided by the business philosophy of “providing innovative products to the world and generating new trends to contribute to the creation of an affluent society,” THK continually strives to create original products as a creative development-driven enterprise.

THK product development as a contributor to industrial development

THK’s business philosophy is based on the idea of “providing innovative products to the world and generating new trends to contribute to the creation of an affluent society.” This thinking has guided our drive to be a creative development-driven enterprise, enabling us to develop a varied stream of products since our establishment in 1971.

THK developed the world’s first linear motion (LM) guide. For the first ten years after we started production and sale of these products in 1972, LM guides were primarily used in machine tools. During this period we developed a series of new products to fulfill our customers’ needs for increased precision and lower cost. In the 1990s, other industries such as manufacturers of semiconductor production equipments and industrial robots began to adopt THK products. We responded by developing various new products that were optimized for customer-specific applications and operating environments in these sectors. In this way, our products have made a valuable contribution to industrial development.

In 1996, we pioneered the development of the world’s first-ever LM guide using caged ball technology, an advance that enabled LM guides to operate without maintenance for much longer periods. Although caged technology was already common in rotary bearings at the time, the problem was that these bearings had to cope with both linear and circular movements. This made it extremely difficult to develop ball cages with sufficient durability to move along straight lines or curves. THK demonstrated superior technical prowess in overcoming this issue. LM guides based on caged ball technology not only provide the benefit of long-term maintenance-free use, but have also made a significant contribution to the development of high-speed, low-noise industrial machinery with longer productive lives, particularly in the machine tool and semiconductor production equipment sectors. The advance also paved the way for the development of LM guides for additional applications. Today, we continue to develop products that use cage-embedded technology. Besides LM guides, this range has expanded to include ball screws, ball splines, and hybrid units combining LM guides with ball screws.

An efficient and effective R&D system

THK’s R&D organization employs about 160 people. R&D functions are based in Tokyo’s Ohta Ward at the Technology Center, which was established in July 2005. A major reorganization was conducted in October 2006 to reinforce the links between various departments, creating the set-up shown in the chart on page 31.

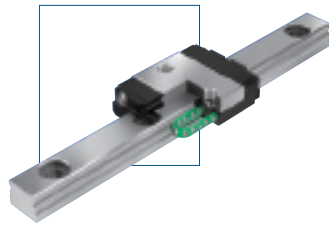
Two departments, Research and Development I and II, take the lead role in new product development. Both departments are organized on a project basis to expedite the commercialization of products optimized to market requirements.

Research and Development I is the department responsible for developing LM guides, ball screws, and other components. Its basic product technology development programs work on a five-year horizon. Other programs seek to make functional improvements to existing products, and to develop new models or custom-made products for specific customers. Research and Development II develops hybrid units and electronics-related technology.

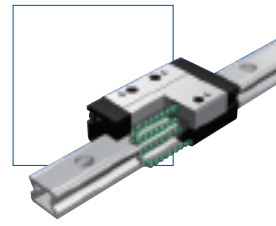
Fiscal 2007 major R&D activities and results

The main theme of R&D activities in fiscal 2007 was the “cubic E” concept, which embraces the three keywords Ecological, Economical and Endless. Programs focused on extending the range of applications for THK’s linear motion technology. Major achievements in the year included the development of products for a number of original applications.

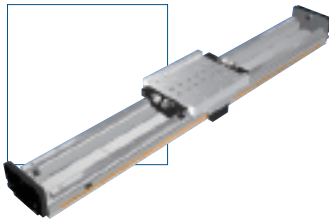
One of the key results in fiscal 2007 was the development of new products to further extend the series of LM guides based on cage-embedded technology, which allows usage of these devices for long periods without maintenance. We completed the development of the SRS-5 type, our smallest LM guide based on caged ball technology, together with a LM Guide Light that realizes a weight reduction of 40% compared with previous products. Both of these products are now being promoted to develop new markets.



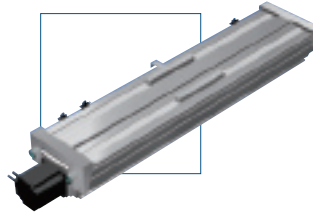
LM Guide with Caged Ball (SRS-5)



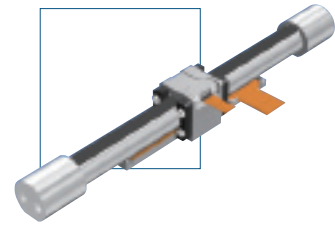
LM Guide Light



Linear Motor Actuator (GLM-15)



LM Actuator for Clean Environment Model (CGL)



Micro Actuator

We also developed a number of actuators that incorporate LM guides based on caged ball technology: the GLM-15/25 type of linear motor actuator; the CGL type of actuator, which is designed for use in clean environments; and the "Micro Actuator," which is a miniaturized hybrid unit. Each of these new products was launched in its target market. In fiscal 2007 we also initiated moves to gain UL certification* for THK's linear motor actuators. Going forward, we aim to expand sales at the global level by promoting the fact that THK products have attained global high level of safety and reliability.

Fiscal 2008 policies and programs

Our view is that there remains a large amount of untapped demand for LM guides and other THK products.

In line with this thinking, in fiscal 2008 we plan to continue trying to accelerate the pace of development while actively seeking to develop new applications. As a creative development-driven enterprise that has generated numerous high-value-added product innovations, we plan to reinforce our R&D efforts with the aim of developing highly original and attractive products for launch five or ten years in the future.

As part of the ongoing development of our global production and sales set-up, we also plan to make further progress in building systems to enable optimal localized development of new products across the four regions of Japan, the Americas, Europe, and Asia. In doing so, we aim to upgrade our development capabilities to cater to the needs of local markets. At the same time, we plan to provide assistance for sales activities with new products on a global scale so that we can expand the range of applications for THK products worldwide.

*Underwriters Laboratories Inc., a U.S.-based organization that ranks as the world's longest established, largest, and most authoritative safety testing institution, awards the UL Mark to certify that products have attained high levels of safety. The mark is widely regarded as a guarantee of safety performance.

Diagram of Engineering Division (As of March 31, 2008)

