Research & Development

Product development at THK is based on our own technological roadmap, but as an industry leader we must also focus on satisfying the needs of users worldwide. Our flexible project development system makes full use of the practical knowledge our developers have accumulated over the years, allowing us to develop suitable products rapidly.

One of THK's hallmarks since our founding in 1971 has been the focused power of our research and development, and the ability to turn ideas into products with wide-ranging, real-world applications in accordance with our basic business philosophy, which is providing innovative products to the world and generating new trends to contribute to the creation of an affluent society.

We developed the world's first LM Guides in 1972. In the 80's American machine tool manufacturers put them to use, and this paved the way for rapid expansion of their use in machine tools. As industrial use of our products expands into semiconductor production equipment and industrial-use robots, etc., we continue to develop products with higher precision and lower cost which reflect consumers' needs.

In 1996 we brought the second-generation LM Guides with Caged Ball Technology to market ahead of competing products. At the time, retainer technology was common in rotating bearings, but the development of a retainer that could withstand both linear and circular movements proved extremely difficult. The LM Guides with Caged Ball Technology were the world's first LM Guides that tackled the difficulties. They have become increasingly indispensable as industrial-use machinery—such as machine tools and semiconductor production equipment—gets faster, quieter and longer-lived. We are currently expanding the Caged Technology se-

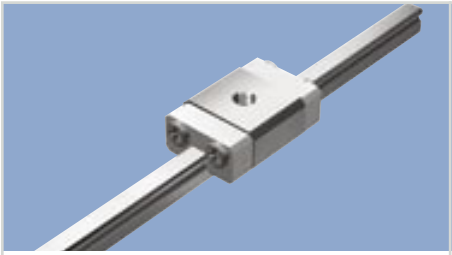
ries beyond standalone LM Guides to include hybrid units such as Ball Screws with Ball Splines and LM Guides with Ball Screws.

Our Engineering Division, which handles R&D, currently maintains facilities in our headquarters, Kofu, Yamaguchi and Yamagata, and employs approximately 150 people in development. Research primarily takes place in the Engineering and Development Department, where we pursue projects from the proposal stage onward and work to speed up development. Development of products in new fields is also conducted on a special-project basis at the MRC Center and CAP Project facilities.

The Engineering Division's slogan for FY 2005 is "Creating products that inspire," and our developmental keywords are "supersize, microsize, and attenuate." We are engaged in vigorously designing next-generation products that will meet market needs 5 or even 10 years from now, even if our customers themselves have yet to realize what those needs will be. We realize that aligning our product lineup to meet current customer needs must always be a priority.

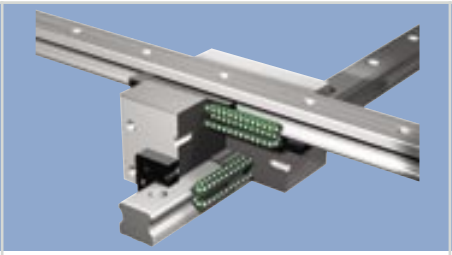
We foresee that the need for rapid development and shorter lead times for manufacturing will increase with the streamlining of the design process in the future, particularly in the electronics industry. We believe it is vital for our company to develop unit products that directly address these needs.

Until recently, THK primarily sought to develop a product lineup that would satisfy the demands of our domestic customers. As we adjust our production and sales systems to a global setting, however, we will choose the most appropriate areas in Japan, the U.S., Europe and Asia to locate development systems that more directly serve the needs of our customers around the globe.



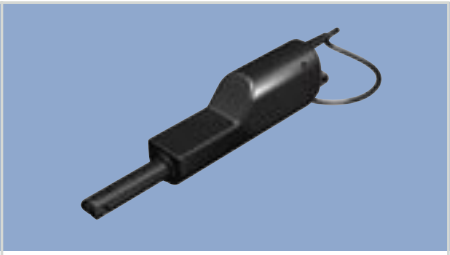
Micro LM Guide RSR1/RSR2

We developed the world's smallest LM Guide, with a rail width of just 1 mm, in response to the need for the ultra-miniaturization our customers will face in the future. We expect this product to be used in medical instruments, semiconductor production equipment, high-precision machinery, and all varieties of measuring equipment. The micro LM Guides are testaments to our company's R&D power and high level of processing technology.



Cross LM Guide with Caged Ball Technology SCR

The LM blocks of the LM Guide with Caged Ball Technology SHS were crossed at the back. This one-piece LM Guide actually consists of 2 LM rails. This product simplifies the structure of X-Y movements and is much more compact in design.



Rod Actuator CRES

We developed this Rod Actuator, manipulated through simple controls, to respond to an increase in demand for electrically powered consumer goods in the home and office. The Rod Actuator CRES is useful in a variety of situations, including the opening and closing of elevated windows and blinds.