

Research and Development

Research and Development Activities

YKK Group (YKK Corporation and its consolidated subsidiaries) research and development (R&D) activities are aligned into six regional bases: Japan (core operations), North and Central America, South America, Europe, the Middle East and Africa (EMEA), China, and Asia.

This alignment is also used for its business development. R&D costs of the overall Group in FY2016 amounted to 21,917 million yen. The Group's major accomplishments during FY2016 can be summarized as follows.

Fastening Products Group

The Fastening Products Group, aiming to fulfill the Fourth Mid-Term Business Policy of "developing a brand-new growth strategy (selling 10 billion units of zippers)," worked to boost value for customers through several initiatives. The efforts included strengthening overall development capabilities in Europe to bring new products into the luxury goods field, enhancing proposals by coordinating the marketing and overseas R&D organizations, and building a framework for creating services and products that meet needs as customers transfer apparel manufacturing bases to Asia.

These wide-ranging initiatives produced numerous positive results. The main outcomes included the development of various zipper products, such as luxury flat-surface metal zippers with excellent designs and low-cost, woven-in zippers for pants for the domestic Indian market, and cost reductions via the establishment and development of a new metal molding technique for snap-and-button products. The

Fastening Products Group also established a new manufacturing process through R&D on new methods that achieve both quality and cost performance in surface treatment.

To achieve the Fifth Mid-Term Business Policy of "Aim for further quantitative growth," the Fastening Products Group will work to enhance its competitiveness in the Standard category by accelerating development through an end-to-end development structure that covers strategy, design, and prototyping. Other initiatives will work to bolster overseas development hubs to meet customer needs on a global scale, create more value through collaborations with apparel manufacturers, and also bring more assignees to Japan for training as overseas developers to make further improvements to overseas development capabilities over a mid-term scope. R&D costs related to the Fastening Products Group total 9,010 million yen.

AP Group

During the Fourth Mid-Term Management Plan period, the AP Group focused on expanding the window business, enhancing the remodeling market, enhancing the range of exterior items, strengthening the commercial products business, and expanding the overseas AP business.

In the window business, the AP Group developed a wood-grain version of the "APW330," a vinyl window frame featuring an exterior that boasts the industry's first wood grain patterned, weather resistant laminate. The Group also developed the "APSWORD NEO" for the residential segment using an aluminum-vinyl composite window, a major step forward from the conventional aluminum window format. In the remodeling market, the AP Group launched sales of Kantan Mado Remo (easy window remodeling), which uses non-sealing cover construction, a first in the industry. Efforts in the exterior business saw an expansion of the "LUCIAS" series, while the commercial products business expanded its lineup of natural ventilation

and renovation products. In the overseas AP business, the AP Group worked on developing products that would suit the climates and environmental conditions in each region.

Kantan Mado Remo also won the Agency for Natural Resources and Energy Commissioner's Award at the FY2016 Energy Conservation Awards, attesting to the Group's product and technology capabilities.

The AP Group opened the YKK AP R&D Center as well, which strives to boost development productivity by bringing engineers to the Center and works to forge stronger connections with professional users.

Recognizing the challenges on the horizon, the AP Group is determined to fortify its product performance across the board, deliver high added value via various offerings (including windows and doors), and create structures and mechanisms for connecting with customers in a concerted effort to provide the kind of value that only the AP Group can offer. R&D costs related to the AP Group total 9,027 million yen.

Other Businesses

The Machinery & Engineering Group, aiming to push the entire YKK Group's technology development functions to an even higher level, works to strengthen technology development capabilities in helping the Group evolve as a "specialized machinery maker for zippers" and a "specialized machinery maker for window lines." The efforts are part of the Machinery & Engineering Group's objective to keep the philosophy of integrated production evolving, a core component of the YKK Group's management operations.

In its efforts to develop technology for the Fastening Products Group during FY2016, the Machinery & Engineering Group used a scheduled machinery and equipment development cycle for development validations of new finishing equipment and slider assemblies. Another effort focused on establishing a framework for promoting the rationalization and improvement of manufacturing lines at major plants in Japan and abroad based on the concept of overall equipment efficiency. The

Machinery & Engineering Group also worked on developing technology for the AP Group. One project centered on improving manufacturing capabilities for the APW330 vinyl window lineup, while another effort was the launch of the production line for the APSWORD NEO aluminum-vinyl composite window series. In FY2017, the Machinery & Engineering Group is aiming to make businesses even more competitive by continuing to pursue its ongoing initiatives and working to help the YKK Group leverage robot technology in an effort to develop business-specific component technologies.

To develop the component technologies for these target objectives, the Machinery & Engineering Group will cultivate technologies via in-house development and collaborate with other companies and universities. Through these types of collaborations, the Group will make active progress in implementing outside technologies and joint development. R&D costs related to other businesses total 3,879 million yen.