Striving to Balance Reliability, Safety and High Performance

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Tsugihiko Musha
Head of the Rod-End Bearings Business Unit

Malfunctioning components in an aircraft can be a life-and-death problem, so reliability is absolutely crucial.

Components used in aircraft must be able not only to bear a load of several tons and withstand sudden load shifts, harsh temperatures ranging from 500˚C+ near the engine to –60˚C outside the aircraft, rapid temperature changes, and diverse and fluctuating weather conditions, but also offer proven—i.e., backed up with extensive test data—durability and safety in all applications at all times, from takeoff to landing.

Manufacturers of aircraft bearings must therefore possess both technological prowess—enabling them to accommodate rigorous specifications—and sophisticated testing facilities. These are the absolute minimum requirements for component manufacturers to become an approved supplier. Being an approved supplier is the minimum condition for competing in this market. Moreover, approval must be earned not only for individual components, but also for production processes, including heat treatment and surface treatment, which also require advanced expertise.

Since Minebea began to manufacture rod-end bearings in 1969, we have cultivated key technologies and gained approval to supply leading aircraft manufacturers. Since the 1990s, we have diversified into areas that are beyond the capabilities of our competitors. These include bearings for use in dry (i.e., unlubricated) conditions, which hamper slide, and for applications requiring extremely high durability. Thanks to these efforts, many aircraft manufacturers today view us as indispensable.

We have formulated a technology road map that will guide our efforts going forward. In line with this, we will strive to develop highly competitive products by maximizing our ultraprecision machining technologies, as well as by enhancing our stress analysis simulation and testing technologies.

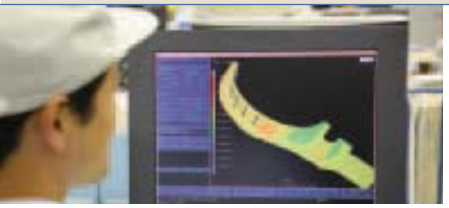
Hideki Kawada
Deputy Head of the Rod-End Bearings Business Unit

Rod-end bearings for aerospace use is a field in which we have achieved both a high market share and outstanding profitability. Although there was a slight dip after the attacks of September 11, 2001, demand today is expanding robustly. With the introduction of the new Airbus A380 ahead, we expect this trend to continue.

In response to rising demand, Minebea will implement a carefully planned program of product development and capital investment, thereby maintaining a healthy balance between profitability and growth.

Bearings for aerospace use

Computerized stress analysis



Load test equipment

Bearings for Aerospace Use

Rod-End Bearings

Spherical Bearings

Roller Bearings

Sleeve Bearings

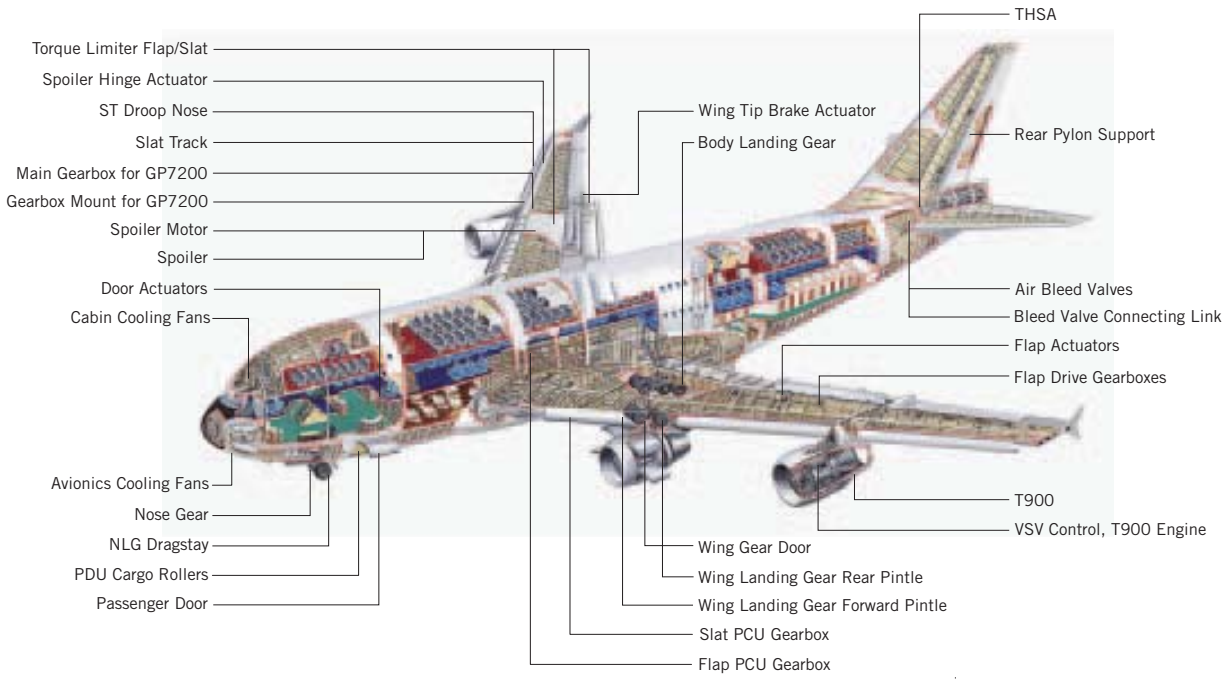
Mechanical Assemblies

Rod-end bearings

Inspection

Inspections guarantee the quality and reliability of every bearing

Applications for Minebea Bearings in the Airbus A380



Roller bearings for aerospace use