

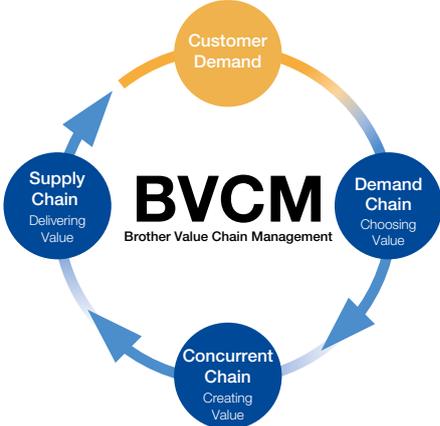
**Product Development**

We take customer opinions as the starting point of our business activities and deliver products and services that meet customer needs.



**Brother’s unique management system for value creation**

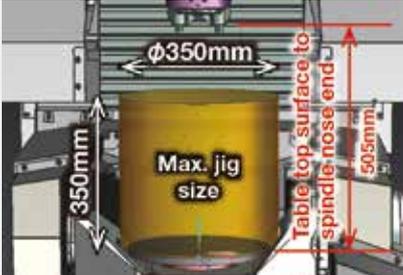
The Brother Group practices an original management system called the “Brother Value Chain Management” (BVCM) and delivers superior products and services to customers based on the “At your side.” spirit. In the Concurrent Chain of BVCM, the product concepts created in the Demand Chain are given a concrete shape. Product simulations and focus group testing by intended users are run again and again before and after prototyping. Through this process, we develop and design our products speedily while ensuring high product quality. The production engineering department designs optimal production lines to deliver our products at the right time for our customers. Respective departments concurrently work toward the commercialization of products while sharing information with each other to swiftly address customer needs with our products.



**Case** Brother explores the further potential of machine tools through its integrated product development



▲ Compact multi-tasking machine M300X3



▲ Machining area larger than that of the previous model

The compact multi-tasking machines\*1 of Brother Industries, Ltd. (BIL) are machine tools that can integrate machining processes and thus offer space savings and operational efficiency. These highly recognized, compact, and high-speed machine tools are widely used for machining mass-produced precision components, such as auto and medical parts. They are also appreciated by eco- and cost-conscious customers due to their ability to lower power consumption and CO<sub>2</sub> emissions.

In recent years, there have been increasing customer demands for compact multi-tasking machines capable of processing larger components. To meet the demands, it was critical for a machine to have an expanded machining area, a motor control system that enhances cutting power, and a high clamping force to prevent deviations in processes. At BIL, where the development of mechanical structures, electronic circuits, controllers, and so forth are combined in a product

development project, engineers took this advantage and collaborated from the early stage of new product development. In this way, they addressed the critical challenges with considerable trial and error. As a result of their efforts, the new product M300X3, with an enlarged machining area and the capability to produce a maximum torque\*2 value for turning approximately 1.8 times greater than that of BIL's previous model, can process large and other components that have not been handled before.

\*1 Processing machines that provide operational efficiency by performing the two operations of milling<sup>3</sup> and turning<sup>4</sup> on the same machine  
 \*2 A twisting force that causes an object to rotate around an axis  
 Torque = the force applied x the distance between the object's axis of rotation and the point where the force is applied  
 \*3 Milling: a process in which a rotating multi-edge cutter, such as a drill and a milling cutter, cuts a fixed workpiece  
 \*4 Turning: a process in which a cutting tool cuts a workpiece rotating like a potter's wheel