Special Feature

Leading the Competition through Manufacturing Excellence

Since its establishment, Minebea has built up a tradition of manufacturing excellence in the area of ball bearings. Today, Minebea is returning to the basics of manufacturing in an effort to extend this tradition—its DNA—to all of its products.

Outperforming the competition by continuously enhancing manufacturing capabilities

"Leading the competition through manufacturing excellence": This year, the annual report team speaks with Eiichi Kobayashi, Senior Managing Executive Officer and Chief of Manufacturing Headquarters—who has played a leading role in ensuring broad acceptance of this new guiding standard throughout the Minebea Group—about what defines manufacturing excellence for Minebea.

Interviewer: Management has outlined two themes at the moment: "Leading the competition through excellence" and "Returning to the basics of manufacturing." How do you interpret these themes?

Kobayashi: In the years since its establishment, Minebea has built up a tradition of manufacturing excellence in the area of ball bearings. This is the reason we have succeeded in expanding this business while maintaining a consistently high level of profitability to date. The idea of returning to the basics of manufacturing is important in everything we do. In the bearings business, it means returning to the roots of this excellence.

Of course, in manufacturing there are always challenges, no matter how advanced or improved processes are. This is true even in our core bearings business. The role of the Manufacturing Headquarters is to articulate the need to rethink the most fundamental aspects of how we manufacture and at the same time to identify specific challenges and work together with all groups involved in manufacturing to find answers.

Interviewer: What do you mean when you say the "basics" or "fundamental aspects" of manufacturing?

Kobayashi: The basic premise of manufacturing is to manufacture the best possible products for the lowest possible cost. Minebea manufactures components, so it is essential that we remain abreast of the requirements of our customers. There is a commonplace Japanese expression, which essentially means "It all comes down to whether you can sell it and whether you can make a profit." Customer requirements vary significantly. We must respond to performance and function requirements at the development stage. At the manufacturing stage, our job is to respond to requirements in terms of quality, cost and delivery time. Regardless of how difficult a customer's requirements are, we cannot just say "No, sorry, can't be done!" and give up. It comes down to how far we can improve yield and how quickly we can produce, that is, how much we can shorten production time. Time equals cost; it's that simple. So, from these two perspectives we are rethinking all of our manufacturing processes and operations, as well as our production floor environments and equipment. Our responsibility is to do whatever is necessary to enhance our manufacturing capabilities.

Interviewer: Can you give us an example of how a measure you have implemented has enhanced manufacturing capabilities?

Kobayashi: We produce the bonded magnets used in Minebea motors in-house. One step in the production of a bonded magnet entails sintering at a low temperature, which used to require 15 seconds. Essentially what happens is that powdered materials are heat-pressed into pellet form, so we took a hint from the pelletizing processes used in the manufacture of pharmaceutical pills, noting that pharmaceutical manufacturers allow less than one second per pill. By looking at the production methods they used and adapting certain aspects to our own sintering process, we succeeded in reducing the time required for sintering bonded magnets to 0.8 second. This reduction in time facilitated reductions in equipment, space and operational personnel requirements for the sintering process, which, in turn, enabled us to significantly lower related costs. This is a classic example of how producing more quickly led to a reduction in costs.

Eiichi Kobayashi
Director
Senior Managing Executive Officer and Chief of Manufacturing Headquarters

Minebea's Strategy

Our products, especially our mainstay bearings, involve a vast range of machining processes. Looking at it in a different way, we purchase a lot of high-priced raw materials and spend considerable time and effort on cutting and grinding, then discarding the swarf. Accordingly, it is important for us to pursue bold improvements that enable us to eliminate waste as much as possible.

Interviewer: Does "enhancing manufacturing capabilities" translate into greater profitability?

Kobayashi: The cost of any product is the cost of materials plus the cost of processing. In addition to rethinking manufacturing processes, we are reviewing the materials we use. At present, persistently high raw materials prices continue to push product costs up and thus to exert pressure on the profitability of our businesses. Seeking ways to lower the cost of purchased materials may not be our direct responsibility, but looking at materials availability and workability does fall within our brief. We operate under a vertically integrated manufacturing system, a key feature of which is that in addition to machined parts, many of the pressed, diecast, molded and other parts we use in manufacturing are produced in-house. From the perspective of production departments, these are the materials they purchase. We also manufacture our own dies, so the cost of die manufacturing is also reflected in the cost of materials. Because the cost of materials is an equally significant component of a finished product's cost, as is the cost of processing, ensuring these materials are better manufactured has an unequivocal impact on the profitability of products and businesses.

Interviewer: Minebea has set a clear vision for itself—that of a company which leads the competition through manufacturing excellence. Has this enabled you to better define the role of the Manufacturing Headquarters?

Kobayashi: As I said initially, Minebea has built up a unique tradition of manufacturing excellence in the area of ball bearings. Over the past few years, however, we have seen our sales and profits stagnate. Surely the main reason for this is that we allowed ourselves to lose sight of the basic goal of "enhancing manufacturing capabilities," focusing instead on maximizing the benefits of mass production. In promoting automation, our attention was entirely on the extensive installation of equipment. We neglected to strive for progress in the basic aspects of manufacturing. The role of the Manufacturing Headquarters is thus to review all aspects of manufacturing, identify issues and work with others in the Company to find solutions. We are here to support the various manufacturing departments. We don't go around telling departments what they should do. Nonetheless, the removal of organizational barriers has paved the way for frank exchange and the setting of common objectives. It has also enabled us to share a sense of satisfaction when something is successful. The Manufacturing Headquarters has identified and is currently working to address more than 100 specific issues. The initial step—i.e., identifying an issue—is the first step toward leading the competition through manufacturing excellence. I am confident that resolving these issues will transform Minebea into an even stronger company than it is today.

Interviewer: Thank you for taking the time to talk to us. We look forward to the ongoing contributions of the Manufacturing Headquarters as the core of Minebea's efforts to address the challenge of "Leading the competition through manufacturing excellence."

Kobayashi: Thank you. We will continue to do our best to respond to expectations.


Supporting manufacturing excellence


Achieving the ultimate in precision machining