

# Our Strengths

High Profitability through Social Contribution: The Story of Mabuchi Motor

## Diversifying Applications while Specializing in Small DC Motors

Cumulative Production and Sales Volume of Small DC Motors Exceeded 50 billion!

### A Pioneer in Small DC motors

The story of Mabuchi Motor begins in 1946, well before the company's founding. In that year Kenichi Mabuchi, later to become the company's first president, created a motor for use in teaching science to school children in Takamatsu, Japan. In 1947, he succeeded in developing the world's first high-performance horseshoe-shaped magnetic motor. In those days, the magnetic field in a DC motor conventionally was created using an electromagnetic coil. But Kenichi was an out-of-the-box thinker, and came up with the idea of using a permanent magnet that would allow for smaller motors and lower power consumption. He proceeded to make this idea a reality. Working with his brother Takaichi who would later become the company's second president, Kenichi produced and sold horseshoe-shaped magnet motors for use in models. This motor was able to rotate continuously for one to two hours using only one battery, which was astounding at the time.



**The Horseshoe Magnet motor**

While building the foundation of the small DC motor business on these products for models, the Mabuchi brothers began to enter the toy parts market, which was larger than the model market. Back then toys were powered mainly by either springs or friction, power sources that dwindle quickly. Therefore, Kenichi and Takaichi developed a motor for toys. In 1953, they approached Nomura Toy, a toy wholesaler in Tokyo, to sell their new motor to the company. When Nomura Toy showed a motorized toy sample to a toy buyer from the United States, the buyer's eyes widened in surprise. This was the origin of Mabuchi Motor sales to Nomura Toy. Production and sales surged, and Kenichi and Takaichi moved their business to Tokyo, the hub of Japan's toy industry. They rented the second floor of Nomura Toy's

warehouse and set up a factory there. Then on January 18, 1954, they established Tokyo Science Industrial Co., Ltd. – the date we regard as the founding date of Mabuchi Motor.

### Small, High-performance, Affordable Motors

In the earlier days of the company, motors produced by Mabuchi were used mostly in toy cars made for export. The toy cars were too expensive for ordinary Japanese people to buy at that time: they cost 1,500 to 2,000 yen each at a time when the monthly salary of new junior high school graduates was 2,000 yen. The company decided to create a small, powerful, low-cost motor that could make toy cars affordable for children in Japan. Doing so was required reducing the cost of the motor from 120 yen to 20 yen, which was the cost of a spring (the existing power source for toy cars sold domestically). To get that cost reduction, we had to design the motor in a whole new way and use low-cost components. An expensive material named alnico (an alloy of aluminum, nickel, cobalt, and iron) normally was used for the magnet, the primary component of the motor. Mabuchi's engineers therefore worked to develop a motor using a low-cost ferrite magnet that a Japanese manufacturer had begun to produce. Using the new ferrite magnet, the company created the F-type motor, whose performance matched that of an alnico magnet motor - at half the weight and a cost below 20 yen. Production of the F-type motor began in 1958. It was an innovation that synced perfectly with the plastic model fad at the time - and "Mabuchi" became a household name.



### F-type Motor

The F-type motor, which uses a ferrite magnet, was developed in 1958

## Technological Innovation and Diversification of Applications

In 1960, we focused our attention on the trend in tape recorders toward more compact, lighter weight, and cordless designs and began to develop a motor for tape recorders. For this application, we needed to achieve silent, smooth rotation while reducing current consumption to 10% of its existing level, and extending service life 50 to 100 times. We did so through a threefold innovation that improved shaft precision, used a new oil-less bearing, and refined the motor technologies, including to enable contact between a commutator and brush – all of which reduced production costs. As a result, we succeeded in developing the FM-250 series of motors, which later gained an overwhelmingly large share of the tape recorder motor market. This is one

example of our innovation pattern. Mabuchi Motor has expanded applications for our small DC motors repeatedly through innovating in technologies and increasing the affordability of end-products.

Concentrating our management resources on small DC motors has been essential for Mabuchi Motor in creating unrivaled products. This is why we have limited our product range to small DC motors. We've grown our business by specializing in small DC motors, extending their applications into diverse markets, and expanding our business activities to markets and customers all over the world as well as in Japan.

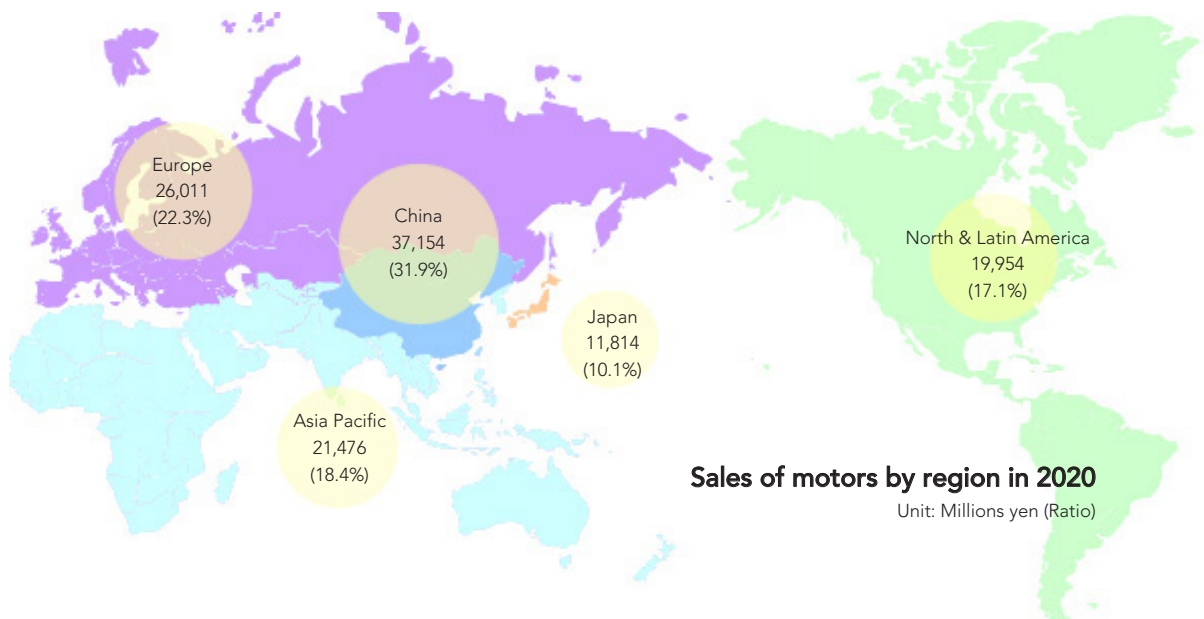
## Selling to Customers around the World

Overseas Sales ratio 90% (2020)

Since its very beginnings, Mabuchi Motor has proven its expertise in securing sales in new markets and applications. The primary export destination of toys, which were the major application of motors in our early days, was the United States. In 1956, two years after our foundation, Kenichi Mabuchi visited the United States. He stayed for 45 days, visiting customers to gain firsthand knowledge of the U.S. market. One of the customers he visited was a major toy manufacturer, the world leader in the industry at the time.

Five years after Kenichi's visit, Mabuchi Motor received a bulk order for 20 million motors per lot from that toy company. In the same year, orders came in for motors for toothbrushes and tape recorders from another U.S. company, one of the largest electric appliance manufacturers in the world.

As a result of these proactive sales activities to markets and customers around the world, the overseas sales ratio of motors has reached 90%.



# Our Strengths

## Stable and High Profitability

**Achievements in generating operating income:  
Securing profitability for 66 consecutive years since its foundation**

### Origin Story: The Mabuchi Management Principle

By 1963, from its beginnings as a small factory, Mabuchi Motor had grown into a medium-sized company with more than 1,000 employees. Takaichi Mabuchi resolved to articulate a basic philosophy for the company that would express "why Mabuchi Motor exists, and what we sweat over and work for."

Takaichi believed that, for the company to keep growing and developing, it needed a strong management team. To build that team, he further believed, the company needed to articulate a core philosophy that would guide and inspire all its employees. He looked back at the path the brothers had taken. They had dedicated themselves to developing a low-cost motor for toys, and achieved production at a low price, equivalent to that of a spring. Their innovation had expanded the market of electric toys, creating economies of scale that brought costs down even more. More children's dreams were coming true, with electric toys now more affordable and accessible to families.

The same was happening in other markets too. The family of Mabuchi Motor, in turn, was finding great worth and meaning in making substantive contributions to the lives of people, and to countries' economies, through its business activities. This idea became the core of our Management Principle that Takaichi Mabuchi formulated for Mabuchi Motor: "Contributing to international society and continuously increasing our contribution." This principle has been our constitution, guiding Mabuchi Group companies around the world, transcending limitations of time and location.

### Promote understanding of Management Principle

All Group employees are to cultivate an understanding of the Management Principle through e-book in Japanese, English, Chinese, Vietnamese, Spanish and Polish.

### Right level of profit as a result of contribution to society

Under our Management Principle, profit is not the company's ultimate objective. However, we attach great importance to profit. We believe that profit is a company's reward for contributing to society or to customers, as well as an indicator of the level of its contribution. Profit is also a source of energy for powering more and increasing social contributions. We believe that a company can remain in a virtuous cycle of increasing social contribution, which increases its profits, which then through more and better activities again increases its social contribution, and so on. And we believe that such a company will gain the support of people and communities local and global. It will find that its purpose has become timeless.

A company can contribute to society only when it provides unique value by creating products or services that are different from those offered by others. A company that only provides what others already do can compete only through price - which means that it cannot make a profit if costs remain unchanged. With this in mind, at Mabuchi Motor we always aim for the "right" level of profit. An appropriate level of profit is necessary for keeping our business stable over time. But the right level of profit is more meaningfully identifiable by observing our effectiveness as an institutional member of, and contributor to, society. When our profit exceeds appropriate levels, we return a share of our profit to customers to strengthen our relationship with them and to reinforce our competitiveness. We do not pursue any sales expansion which will not generate profit. Our objective is always sustainable growth accompanied by the right level of profit.

## The Standardization Strategy

In 1969, as the scale of motor production and sales grew rapidly, we experienced a shortage of parts and our assembly capacity proved insufficient. A significant production shortage ensued. In the toy industry of the time, that products were custom-made was taken for granted, and Mabuchi Motor was producing a wide variety of motors whose specifications differed slightly depending on the customer. The production failure hit during the summer, which was the peak production period ahead of the winter holiday shopping season. A number of our customers were dissatisfied and told us so. To rectify this situation – and just as importantly, to avoid its recurrence – Mabuchi Motor made the decision to standardize its products.

There were internal objections to this decision, as some believed that standardized motors would not sell well. Yet we proceeded, betting on the idea that standardization would be essential for developing our business over time: standardizing our motors would enable both production planning and cost reduction because it would allow for inventories. Further, we reasoned that by making operations more stable, standardization would help us maintain and improve the quality of our products. Higher quality would in turn increase value for our customers, who were committed to streamlining their operations in the face of fierce

competition.

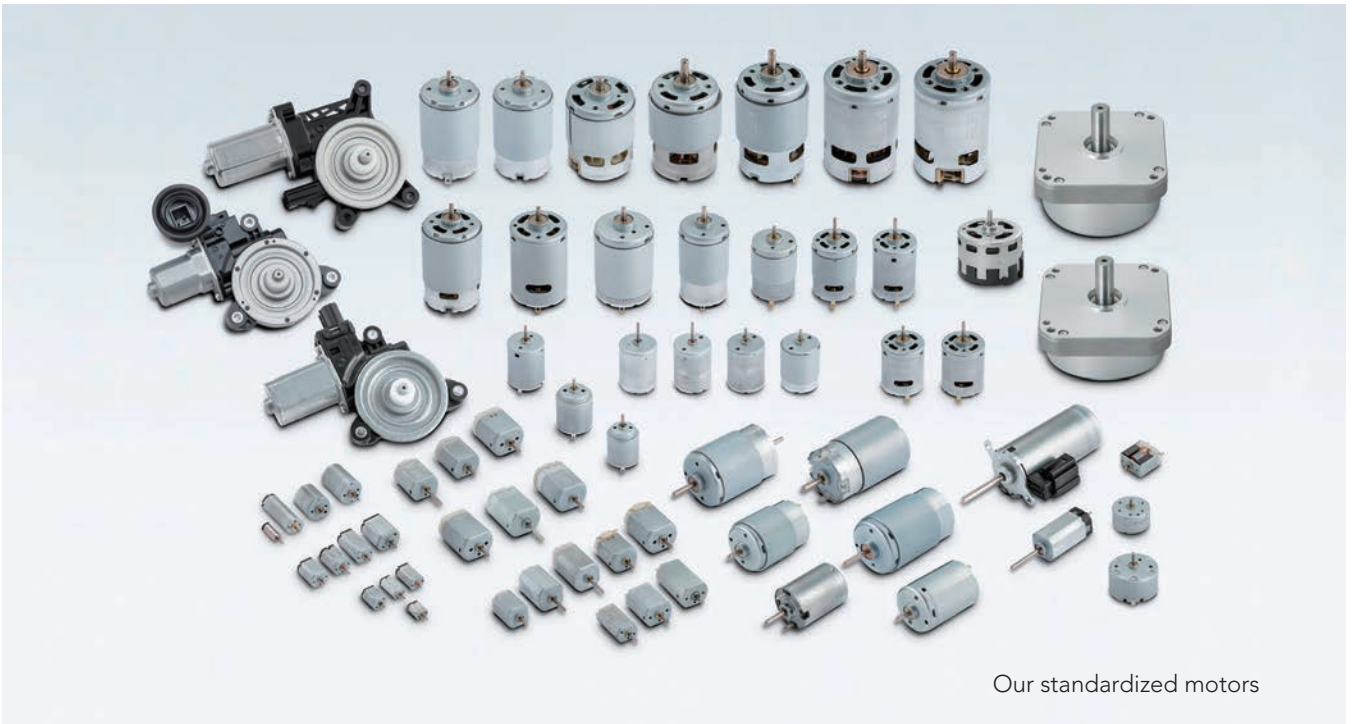
To make our new strategy a reality, Mabuchi Motor set out to propose our product standardization to our customers. Mattel, Inc. was the first to agree. The global industry leader, Mattel, Inc. was keenly aware of the tough competitive environment and recognized that standardization offered a smart and reasonable way forward.

After that first agreement with Mattel Inc., our standardization project clicked into gear.

Our increased capacity to supply high-quality motors at affordable prices enabled us to broaden the range of applications for small DC motors. More diverse applications led to increased mass production of standardized products and then to cost reductions, in a virtuous cycle.

Standardization, the starting point for that virtuous cycle, wasn't at all the standard thinking in the industry in Japan at the time. And it wasn't something our competitors, locked into the customization canon of the time, were ready or willing to imitate.

Product standardization was a bold and decisive move by Mabuchi Motor. It established and fortified our competitive edge over our competitors and brought high and sustained profitability.



# Our Strengths

## World Optimum Production

Overseas production ratio : 100%

### Global Expansion from an early stage

In 1964, as we celebrated our 10th anniversary, Mabuchi Motor's first production base outside Japan began operations in Hong Kong. Growing fast as a global center of toy production, Hong Kong had attracted our customers and competitors. There were also tax benefits to companies locating there. Under the Commonwealth preference system, products could be exported from Hong Kong to Europe via the UK, and of course to the UK itself, without being subject to tariffs. For Mabuchi Motor, entry into Hong Kong was essential to our competitiveness in exporting to Europe, relative to others in our industry who were already operating in Hong Kong. Subsequently we opened production bases in Hsinchu, Taiwan (1969), in Kaohsiung, Taiwan (1979), in Guangdong, China (1986), and in Dalian, China (1987). By about 1990, virtually all of our products were made outside Japan.



Hong Kong  
Mabuchi  
(Est. 1964)

In the 1990s, we added a production base in Suzhou, China, increasing our production capacity in coastal China, and entered also Bien Hoa, Vietnam. Expansion continued in the 2000s, with new production bases in Danang, Vietnam and Jiangxi, China, two new locations that served to reduce production concentration in the coastal China region. In the 2010s, when automotive appliances became the primary application of our motors, we set up production bases in the Americas and Europe -- in Aguascalientes, Mexico and Małopolski, Poland. With those in place, we established the global five-pole business structure with a focus on local production for local consumption.

Our expansion story shows how we've continuously updated our production infrastructure in response to the economic development of countries and regions, as well as to changes in our own business portfolio. Applications for our motors, initially limited to models and toys, expanded over time into home appliances, power tools, audio-visual equipment, precision and office equipment, automotive appliances, medical equipment, and light electric vehicles.

The result is an optimized, resilient global production system that provides excellent motors at reasonable prices. Thanks to our product standardization strategy, we can mass-produce and sell motors with a limited variety of specifications, thereby realizing both high quality and low cost. This is the unique capability that has made Mabuchi Motor the world's leading manufacturer of small DC motors, producing 1.2 billion units every year.

Our supply capacity is a tremendous strength. Our customers are leaders in their industries; they incorporate vast quantities of motors into their products. In our business, it is vital to have our products adopted by leading companies in each application market, because it is very effective in promoting our products to other companies in the same industry and results in gaining high market share and increasing competitive advantage.



Poland Mabuchi (Est.2017)

# Utilization of Human Resources in the World

Overseas human resources ratio of production base factory manager: 85%

Overseas human resources ratio of production base president: 62%

## Our Global Workforce

Mabuchi Group companies worldwide have garnered a large global workforce. Japanese employees support production, sales, and development activities, yet a high percentage of employees in our company workforce are non-Japanese.

Of our 13 production bases, 8 bases located in China and Vietnam are led by non-Japanese. Of factory managers responsible for manufacturing, 85% are non-Japanese.

Four of our sales bases, in Germany, China, Singapore, and South Korea, have non-Japanese leadership as well. In addition, two Chinese managers and one Vietnamese

manager serve as executive officers of the Mabuchi Group (as of March 2021).

Meanwhile, employees based either at Headquarters in Japan or at overseas bases have many opportunities to take on assignments in other countries or regions. At Mexico Mabuchi, for example, people from Headquarters, Jiangsu Mabuchi, Taiwan Mabuchi, and Vietnam Mabuchi are joining local Mexican teammates to form a global team at our newest base.

