

A large industrial machine, the Brother SPEEDIO W1000Xd1, is shown in a dark setting. The machine has a blue and white color scheme. The top left panel is white with the 'brother' logo. The top right panel is blue with 'SPEEDIO' and 'W1000Xd1' printed on it. The main body of the machine is blue with two large doors, each featuring a grid of small square windows. On the right side, there is a control panel with a screen and various buttons. The machine is illuminated from the left, creating a strong contrast with the dark background.

# Machine Tools Business Briefing

October 5, 2023

Makoto Hoshi

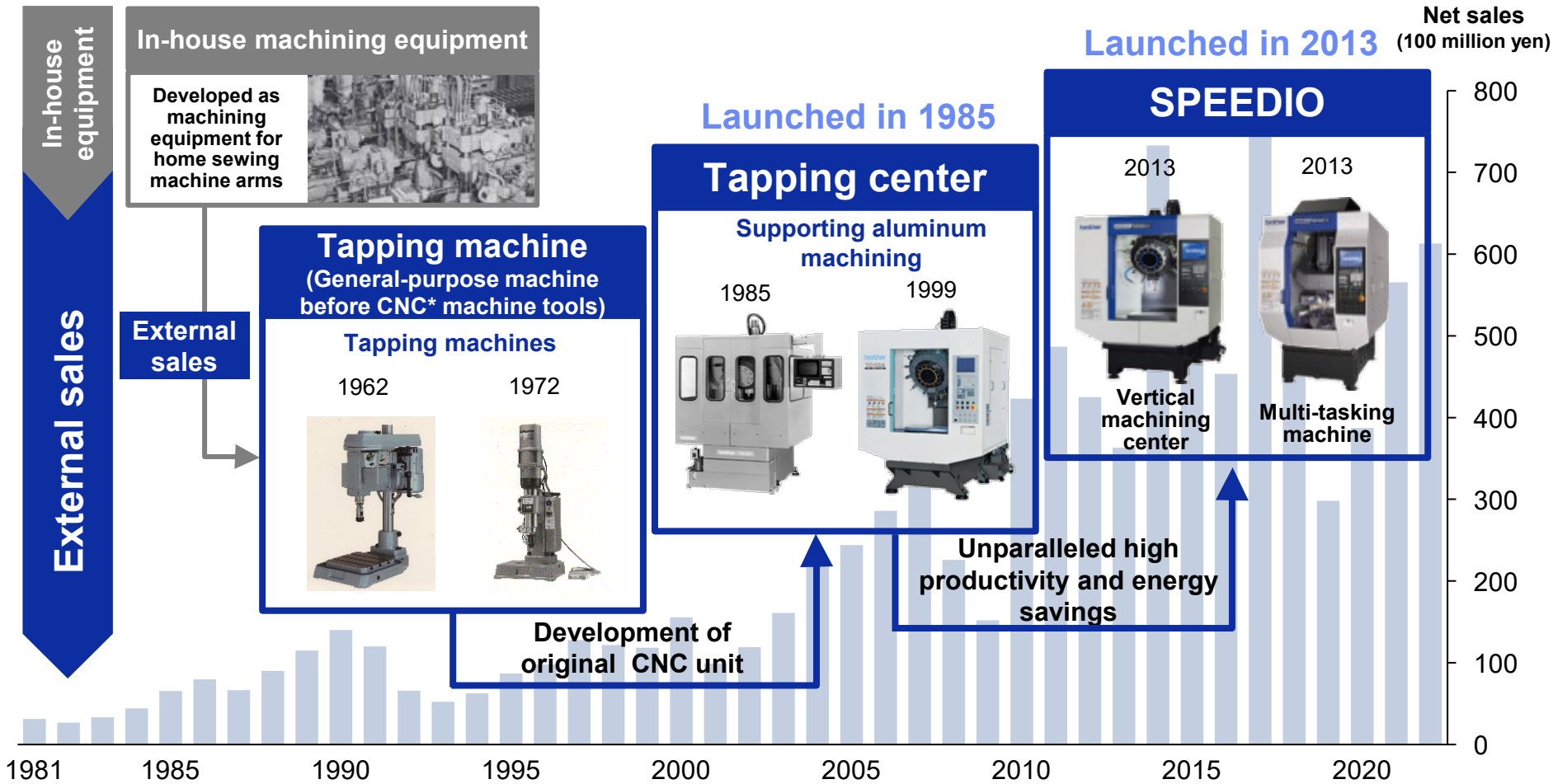
Senior Managing Executive Officer

Brother Industries, Ltd.

# Business Overview

# History of Business

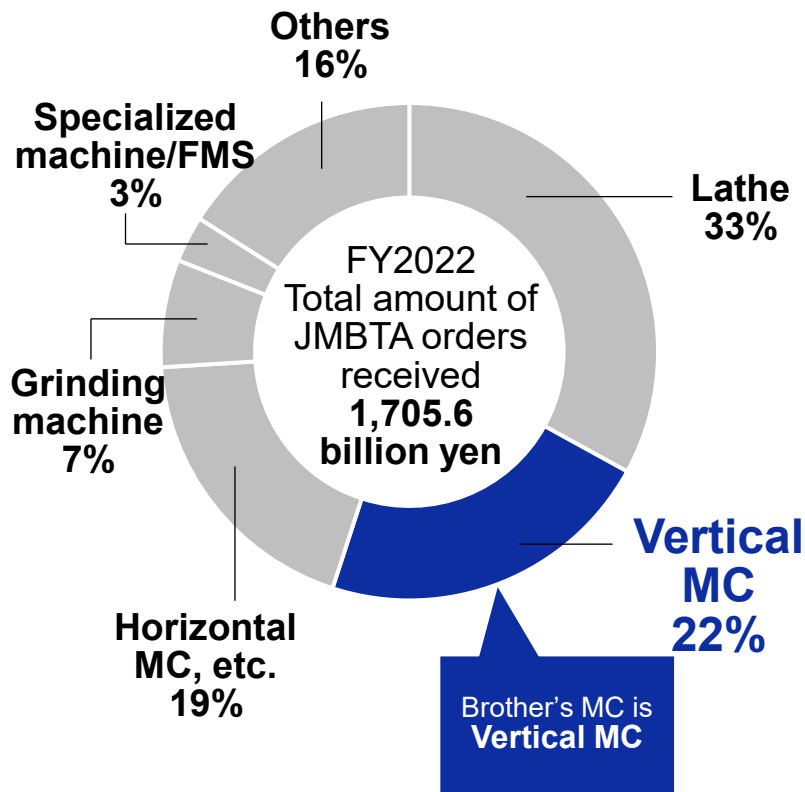
It started with the machining equipment for the in-house production of sewing machine parts  
 Later the business began the external sales of tapping machines,  
 then shifted to compact CNC machine tools



\*CNC: controlled numerically by computer

Brother's SPEEDIO machine tools belong to the vertical machining center (MC) category\*, specializing in BT30 compact machines

## Machine tool market breakdown






\*SPEEDIO's first horizontal MC was released in April 2023

Source: The Japan Machine Tool Builders' Association, Orders Received in FY2022

## Classification of machine size according to spindle size



Category	Small size MC	Medium size MC	Large size MC
Spindle size	BT30 or smaller	BT40	BT50 or larger
			

Brother's MC uses BT30



私が、  
最初です

## SPEEDIO 誕生、10周年。



SPEEDIO 10th Anniversary Special Website (Japanese only):  
[SPEEDIO 10th Anniversary | Machine Tools | Brother \(brother.co.jp\)](https://www.brother.co.jp/speedio10th)

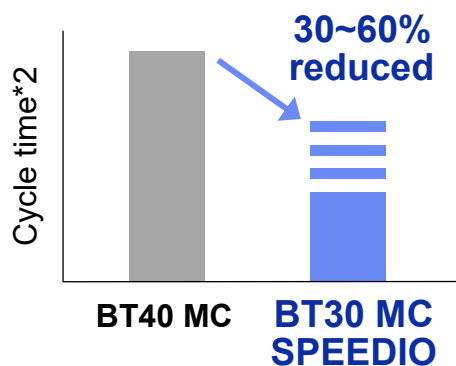


High productivity, compact size, and energy saving are achieved by the commitment to BT30 and the integrated development of machine and controller, which includes in-house development of original CNC\*1 unit

## Strengths of SPEEDIO

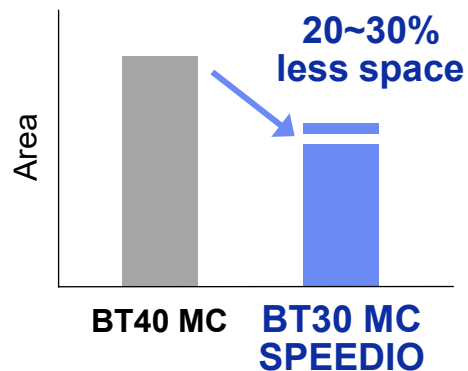
### High productivity

#### Machining time per cycle



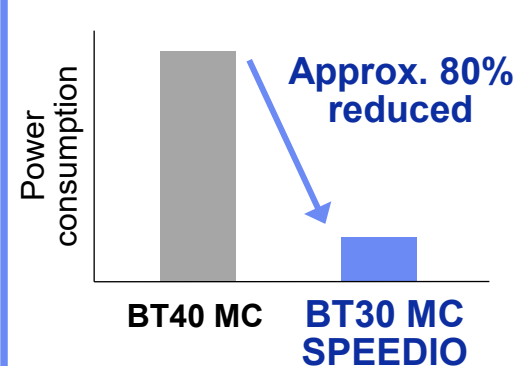
### Compact size

#### Installation area



### Energy saving

#### Power consumption per cycle



Integrated development of machine and controller  
(incorporation of original CNC developed in-house)

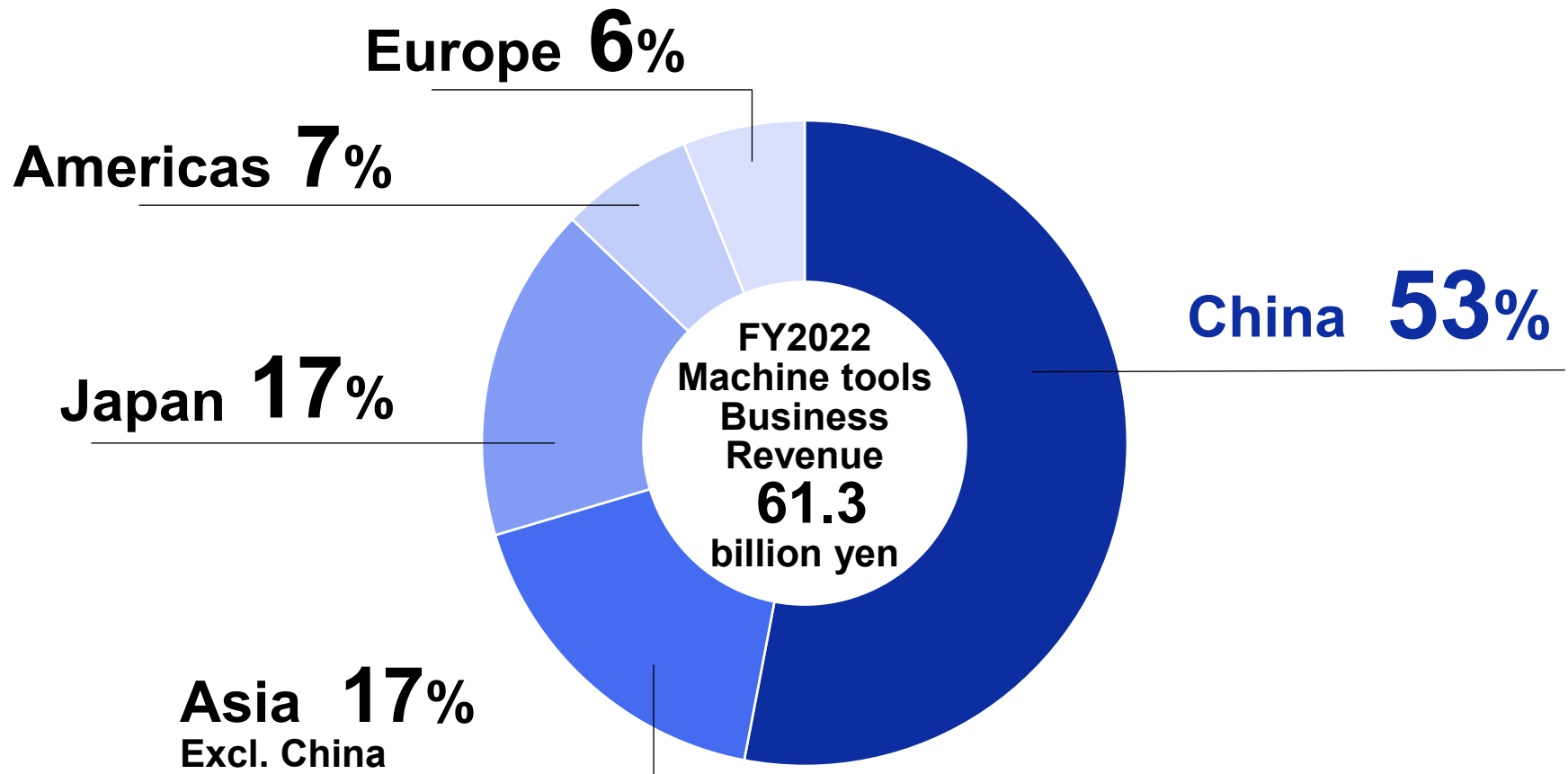
## Commitment to BT30

\*1 CNC: controlled numerically by computer

\*2 Cycle time: machining time of one part on a machine tool

# Sales Composition by Region

Approximately half of sales are to China



# Medium-term Business Strategy CS B2024



## Expanding sales while ensuring profitability in the highly volatile machine tool industry

### Insights into the machine tools business environment

#### Opportunities

- Increase in **EV-related investment** due to acceleration of global carbon neutrality
- Growing demand in the **general machinery market**
- Continued expansion of the **Chinese market**
- Substantial future growth in the **Indian market**
- Room for market share expansion in **Japan**
- Growing demand for **automation and labor-saving** due to declining working population

#### Risks

- High **volatility**
- Decrease in **internal combustion engine** related parts
- High proportion of sales to **China**
- **Security trade** risk

### CS B2024 (machine tools business)

#### Main strategies

- For more growth in stable markets:
- **Strengthen product lineup**
  - **Strengthen facilities in three priority areas**

#### Performance target (FY2024)

**Sales revenue: 100 billion yen**

\*: Exchange rate assumed: 1USD=108 yen, 1EUR=125 yen (assumed rate at the time of CS B2024 release)

# About Stable Markets

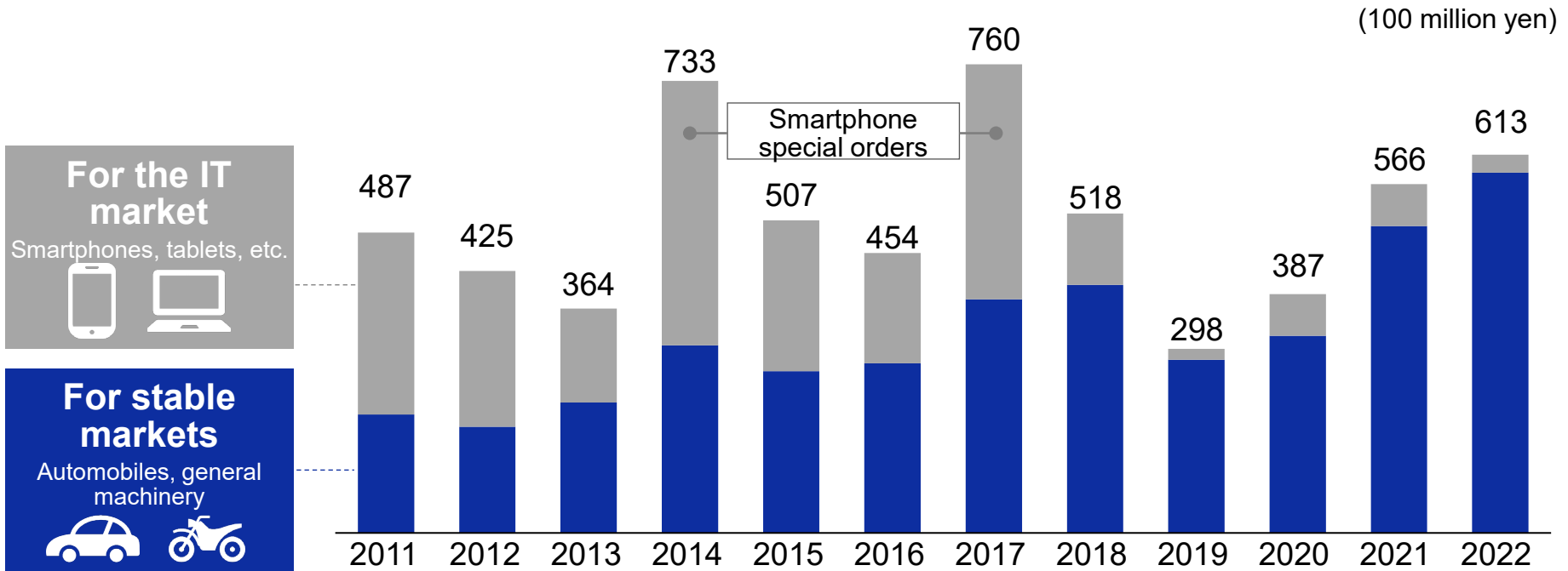
# Growth of Sales for Stable Market | Sales Trends by Industry

Over the past 10 years, the sales composition has shifted from products for the volatile IT market to products for the stable market.  
Continuing to focus on stable markets

## Stable markets

“Stable markets” means the automotive and general machinery markets.  
Less volatile than IT markets such as smartphones and tablets.

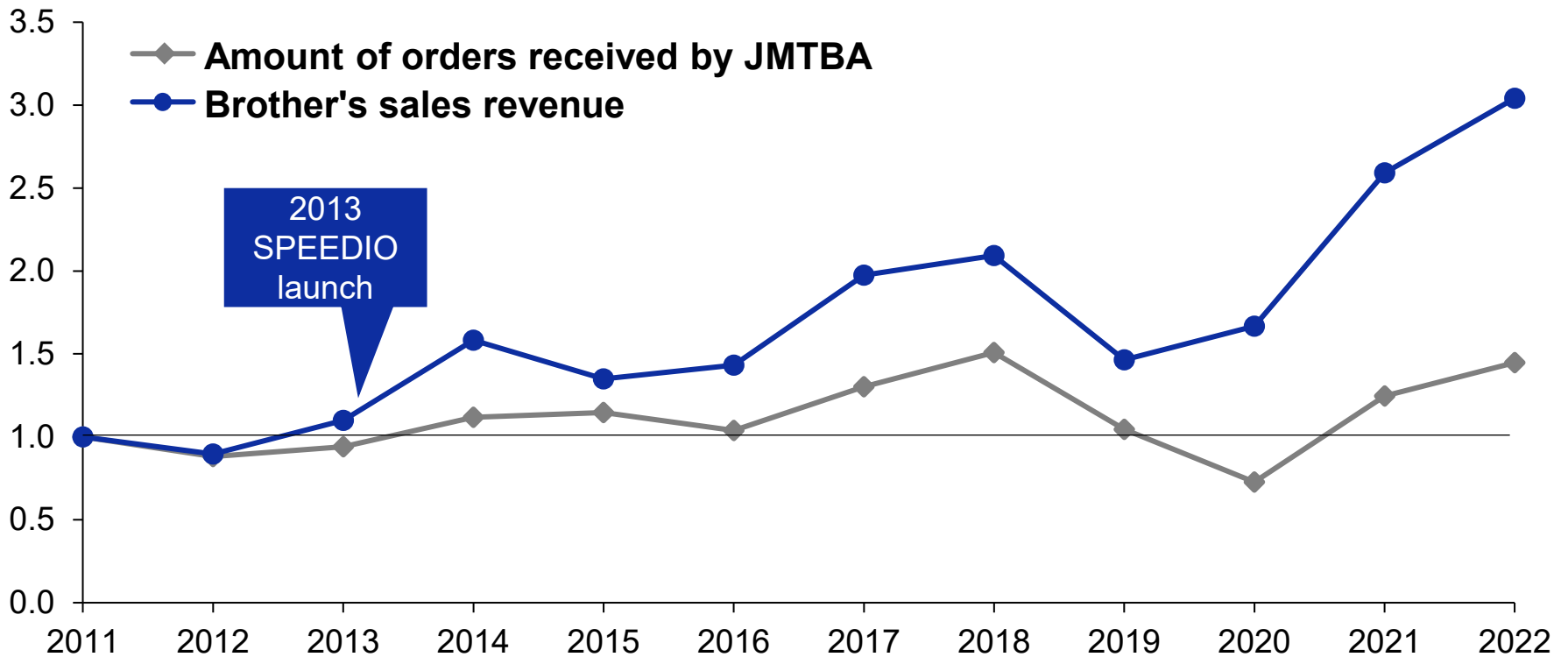
### Sales Trends in the machine tools Business



# [Reference] Growth of Sales for Stable Market | Comparison to JMTBA Orders Received

Due in part to the expansion of the aluminum machining market and the shift to EVs and carbon neutrality, Brother's sales for stable market achieved a higher growth rate compared to industry standards

Trends in Sales and Orders Received for Stable Market (Index with value of 2011 as 1)



\* JMTBA orders are shown for the January-December period and Brother sales are shown for the April-March one-year period. Both exclude the IT market.

# Strengthening Product Lineup

# Strengthening Product Lineup

Almost all product lineups were renewed in and after FY2022, when the medium-term business strategy CS B2024 started. With the introduction of the new U and H series and the expansion of models that support simultaneous 5-axis machining

➤ **Renewed from C00 control to D00 control**  
(F-series not included)

**New** ... New products launched after FY2022

**5 AX** ... Simultaneous 5-axis machining model

## S-series

Standard model

S300Xd1/S500Xd1/S700Xd1



## W-series

For large workpieces

W1000Xd2



## R-series

Equipped with pallet changer

R450Xd1/R650Xd1



## U-series

Multi-face machining

U500Xd1



## F-series

High rigidity

F600X1



## M-series

Multi-tasking machine

M200Xd1/M300Xd1



## H-series

Horizontal machining center

H550Xd1



## Peripherals

Rotary table  
T-200A/T-200Ad



Loading system  
BV7-870Ad



Here are videos to give you a better idea of the products

1

## Multi-face machining

### U-series



[\[Video\] U500Xd1 Product Introduction](#)

[\[Video\] U500Xd1 High Speed Multi-face Machining](#)

2

## Simultaneous 5-axis machining



[\[Video\] M200Xd1 / M200Xd1-5AX Product introduction](#)

[\[Video\] M200Xd1-5AX 5-AXIS Machining](#)

3

## Horizontal MC

### H-series



[\[Video\] H550Xd1 Product introduction](#)

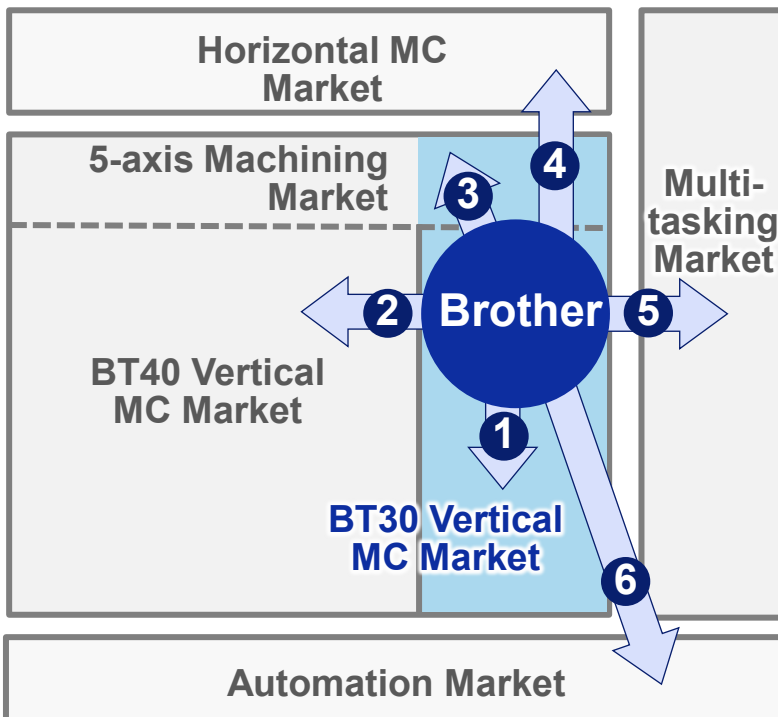
[\[Video\] H550Xd1 Horizontal Compact Machining Center](#)

Click [\[Video\]](#) to link to external sites (YouTube)

Aiming to actively expand the business into neighboring areas by providing value beyond the framework of BT30 vertical MC, such as by enabling the machining of large workpieces and complex shapes through the enhancement of the product lineup

## Concept of expanding the reach market by strengthening the product lineup\*

- Enhanced product lineup enables support for **large workpieces, complex shape machining, multiple functions, and automation**



\*Does not represent actual market size

- 1 Expansion in BT30 market share through lineup expansion
- 2 Replacing BT40 MC by introducing models for large workpieces such as W-series and improving machining capabilities
- 3 Entering into the 5-axis machining market with simultaneous 5-axis models capable of machining complex shapes
- 4 Introducing the BT30 horizontal H-series in the horizontal MC market, which is dominated by the BT40 machines
- 5 Entering into the multi-tasking market by strengthening the lineup of the M-series, which is the MC with lathe functions
- 6 Entering into the automation market by proposing solutions combining peripheral equipment and robots

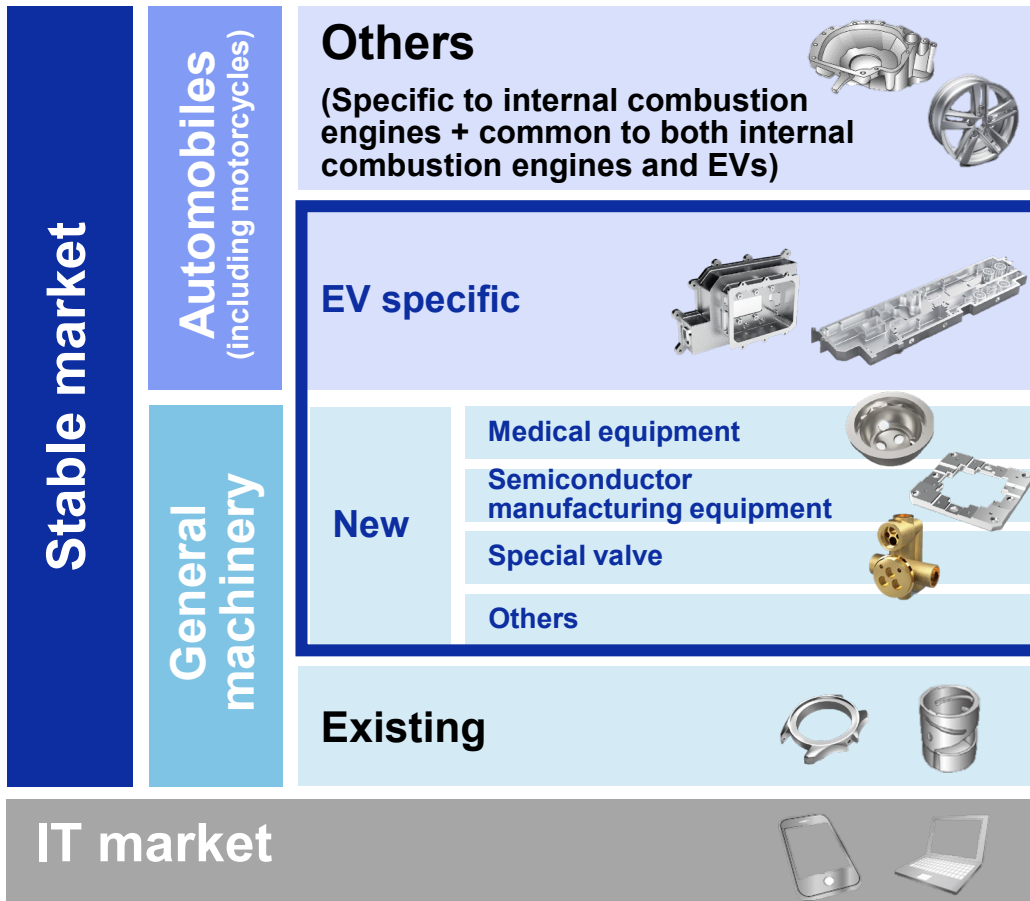


# Target Market (Customer Aspect)

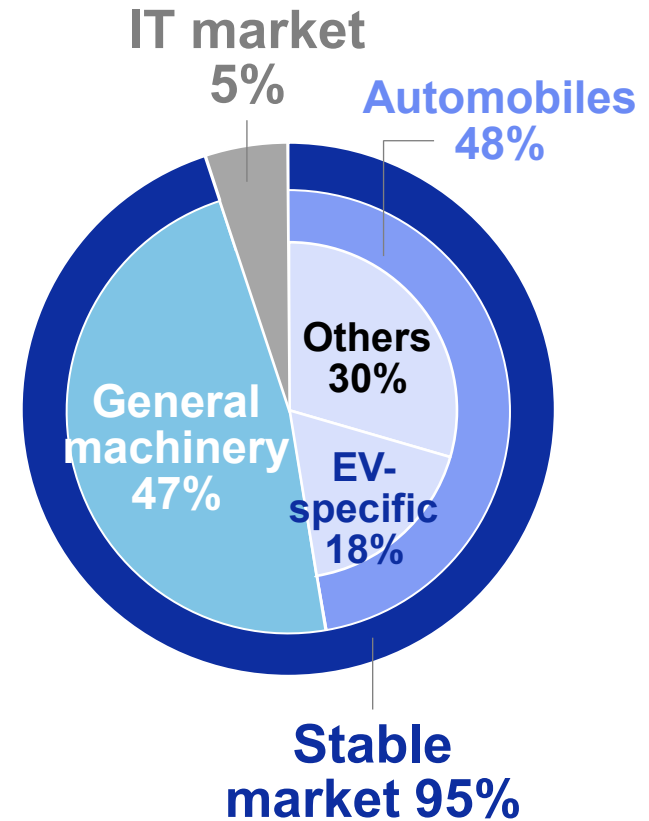
In stable markets, focus on developing new customers for general machinery in addition to gaining customers in the EV market

**Brother's Machine Tools Market Segmentation (Customer Aspect)**

**Sales Composition Ratio (FY2022 order value basis)**



**Focus areas**



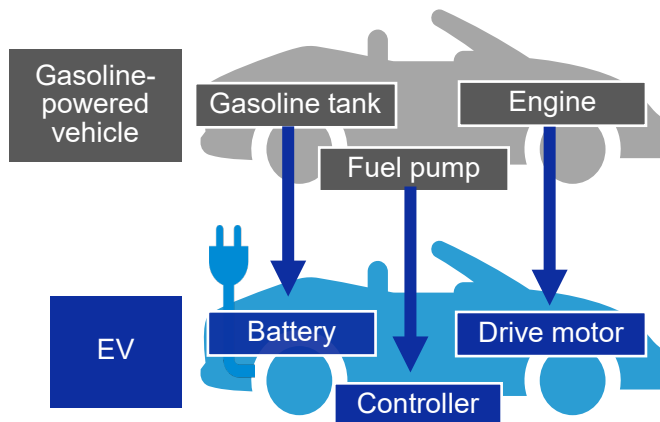
The rapidly expanding EV market presents a growth opportunity for Brother, which has strengths in aluminum machining, due to the relatively low barriers to entry in the supply chain

## ■ The shift from gasoline-powered vehicles to EVs has increased the need for new parts machining

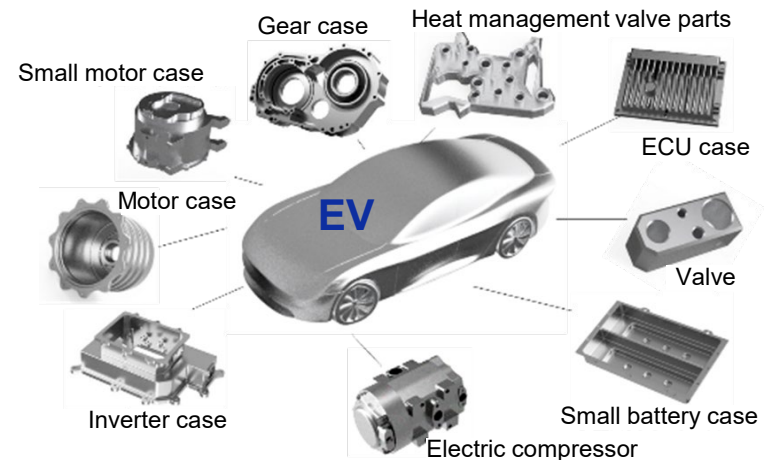
### ✓ Trends in EV-related parts are "lighter," "larger," and "more diversified"

- Increasing need for machining aluminum parts for weight reduction
- Increasing needs for machining of large parts such as battery and motor cases
- Diversification of machined parts

### Replacement of components from gasoline vehicles to EVs



### Aluminum parts used in EVs



## ■ Brother's SPEEDIO has strength in aluminum machining and is suitable for EV parts machining

## ■ The EV market is providing emerging manufacturers with significant opportunities to enter into the supply chain

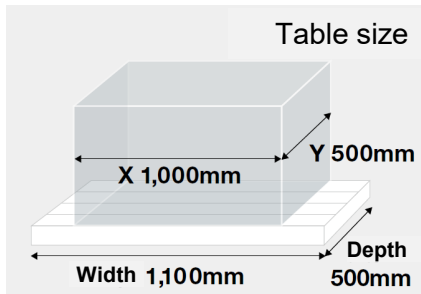
Strengthening product capabilities and lineups to meet the machining needs of EV parts, which are becoming larger and more diverse

## **W** | Support for large workpieces

- ✓ The largest machining area for a BT30 spindle machine



W1000Xd2



## **H** | SPEEDIO's first horizontal MC

- ✓ Horizontal spindle design provides large machining area and machining of large parts



H550Xd1



## **U** | Multi-face machining center with large rotary table

- ✓ Equipped with a large tilting rotary table that enables machining of large parts and multi-face machining



U500Xd1



# Developing New Customers in the General Machinery Market

Aiming to develop new customers in the high value-added field of general machinery by strengthening the product lineup and expanding machining targets and capabilities, including the simultaneous 5-axis machining center

Area with high added value that requires complex, high-grade machining

## Medical equipment

- ✓ Large market size and demand is expected to continue to grow due to aging of the population

Workpiece example



Outer cup  
(femoral joint)

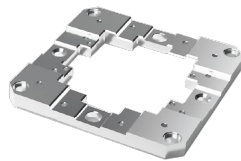


Bone plate

## Semiconductor manufacturing equipment

- ✓ Growth is expected to continue in line with increased demand for semiconductors

Workpiece example



IC socket jig



Disk plate

## Special valve

- ✓ Demand is expected to continue due to the variety of products in which it is used

Workpiece example



Gas cylinder valve



Shower valve

Achieving **high value-added** machining with **high productivity** through **simultaneous 5-axis machining centers** capable of machining complex shapes, etc.



U500Xd1



M200Xd1



S500Xd1

Strengthening proposals for automation/labor-saving solutions and process-integration models, mainly targeting small- and medium-sized metalworking customers facing labor shortages

## Automation and labor saving by combining SPEEDIO with peripheral equipment and robots

### SPEEDIO



Brother's transportation equipment

- ✓ Allows space-saving installation as it can be integrated with SPEEDIO



### SPEEDIO pallet changer model (R-series)



Other companies' collaborative robots

- ✓ Covers the disadvantages of collaborative robots (slow and time-consuming operation) with the advantages of the R-series (allowing for workpieces to be swapped even during machining)

\* Collaborative robots: Robots that collaborates and work with humans without safety fences

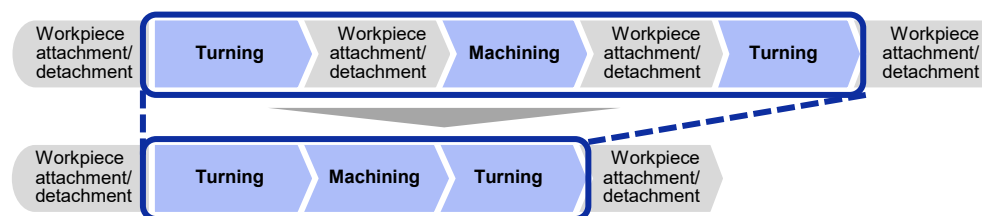


## SPEEDIO multitasking machine (M series) for process integration

- ✓ Contributes to labor saving by integrating processes with a multi-tasking machine that performs machining and turning in a single machine



Image of process integration by multi-tasking machine

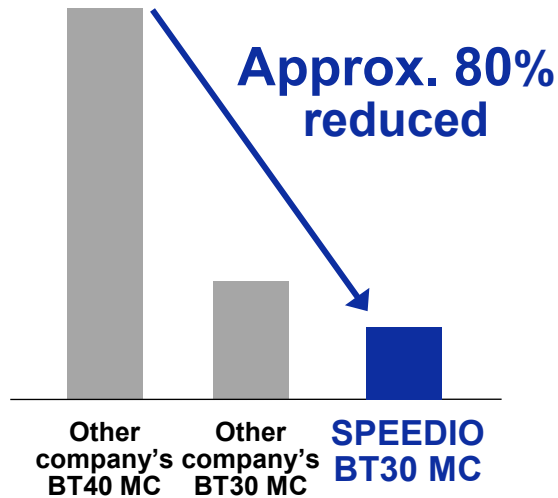


Contributing to customers' carbon neutrality by providing machine tools with the No. 1 environmental performance in the class

## ■ High environmental performance

- In addition to its compact size and low power consumption, the machine can complete machining operations in a short time, achieving **higher energy efficiency** than BT40 machining centers.
- Contributing to the **reduction of CO<sub>2</sub> emissions** and the achievement of carbon neutrality at production sites

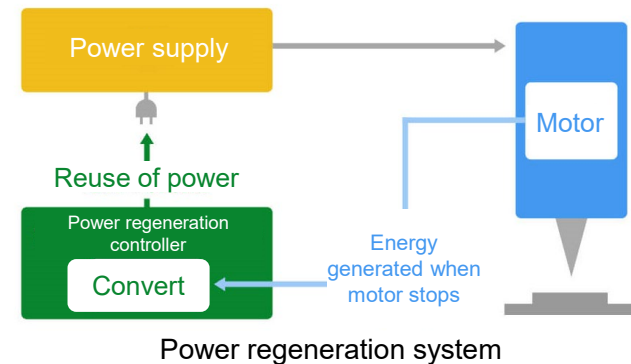
Power consumption\*



\*: Machining example of inverter case for EV

## ■ Technology to achieve energy saving

- **Highly efficient spindle motor (IPM motor)** combined with **power regeneration system generates** high regenerative power and achieves **energy saving**



- Equipped with **various energy-saving functions** to achieve **low power consumption**



Energy-saving CNC function

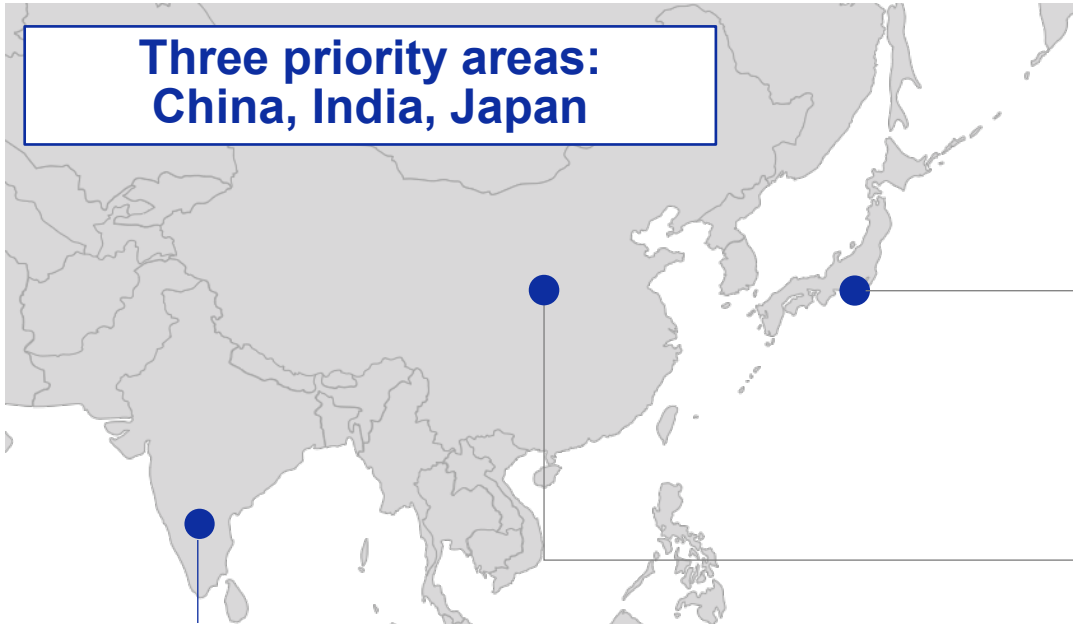


Energy-saving pump

# Strengthening Facilities

In addition to the Kariya Factory, Brother's main factory, and the Xi'an Factory for China, Brother is building a factory in India, where future growth is expected, with completion scheduled for September 2024

**Three priority areas:  
China, India, Japan**



## India Factory (Near Bengaluru, India)

Company name: Brother Machinery India  
Products: Machine tools  
Sales destination: India  
Scheduled completion: September 2024



## Kariya Factory (Kariya, Aichi)

Products: Machine tools, garment printers  
Sales destination: All domestic and overseas



## Xian Factory (Xi'an, China)

Company name: Brother Machinery Xian  
Products: Machine tools and industrial sewing machines

Sales destination: China

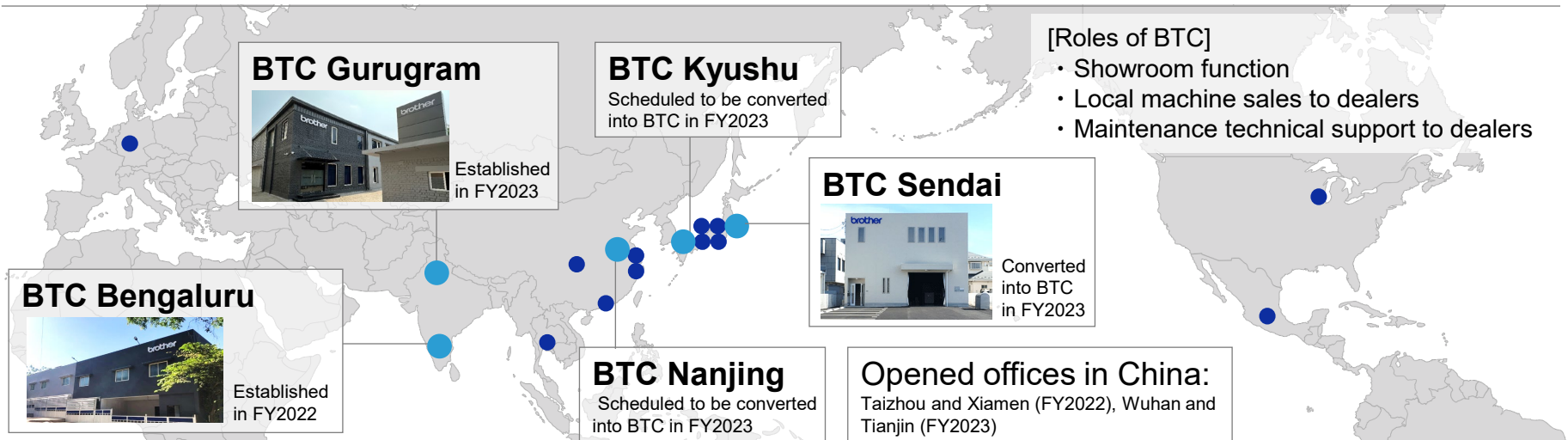
\*Production capacity was doubled in FY2021





Strengthening the support system by opening technology centers and offices in three priority areas: China, India, and Japan

Brother Technology Center (BTC) ●...Opened in FY2022 or after ●...Existing



	China	India	Japan	Other
<b>Brother Technology Center (BTC)</b>	<ul style="list-style-type: none"> <li>• Shanghai</li> <li>• Chongqing</li> <li>• Dongguan</li> <li>• Ningbo</li> <li>• <b>Nanjing</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Bengaluru</b></li> <li>• <b>Gurugram</b></li> </ul>	<ul style="list-style-type: none"> <li>• Head Office</li> <li>• Tokyo</li> <li>• Osaka</li> <li>• Northern Kanto</li> <li>• <b>Sendai</b></li> <li>• <b>Kyushu</b></li> </ul>	<ul style="list-style-type: none"> <li>• Chicago (U.S.)</li> <li>• Queretaro (Mexico)</li> <li>• Frankfurt (Germany)</li> <li>• Bangkok (Thailand)</li> </ul>
<b>Office/ Sales Office</b>	<ul style="list-style-type: none"> <li>• Guangzhou</li> <li>• Wuxi</li> <li>• Hefei</li> <li>• <b>Taizhou</b></li> <li>• <b>Xiamen</b></li> <li>• <b>Wuhan</b></li> <li>• <b>Tianjin</b></li> </ul>		<ul style="list-style-type: none"> <li>• Hiroshima</li> <li>• Shizuoka</li> </ul>	

## Potential Risks

## Aiming for significant business growth while addressing risks

### Business risks

### Countermeasures for risks

#### Volatility

Machine tools are an industry related to capital investment and are susceptible to economic fluctuations.

- Build a structure that can secure profits regardless of economic fluctuations by conducting flexible management initiatives such as lightening fixed costs and making them variable as much as possible

#### Decrease in internal combustion engine related parts

The shift to EVs will reduce the need for parts machining related to internal combustion engines

- Expand business opportunities by focusing on EV-specific components

#### Concentration in China

Sales to China account for about half of total sales, making the business susceptible to China's economic trends

- Improve regional balance by expanding sales outside of China

#### Security trade

Changes in international regulations may affect sales in China, India, etc.

- Minimize damage caused by regulatory changes by building a system to respond to such changes
- Strengthen sales to countries/regions that are less affected by regulatory changes, such as Japan

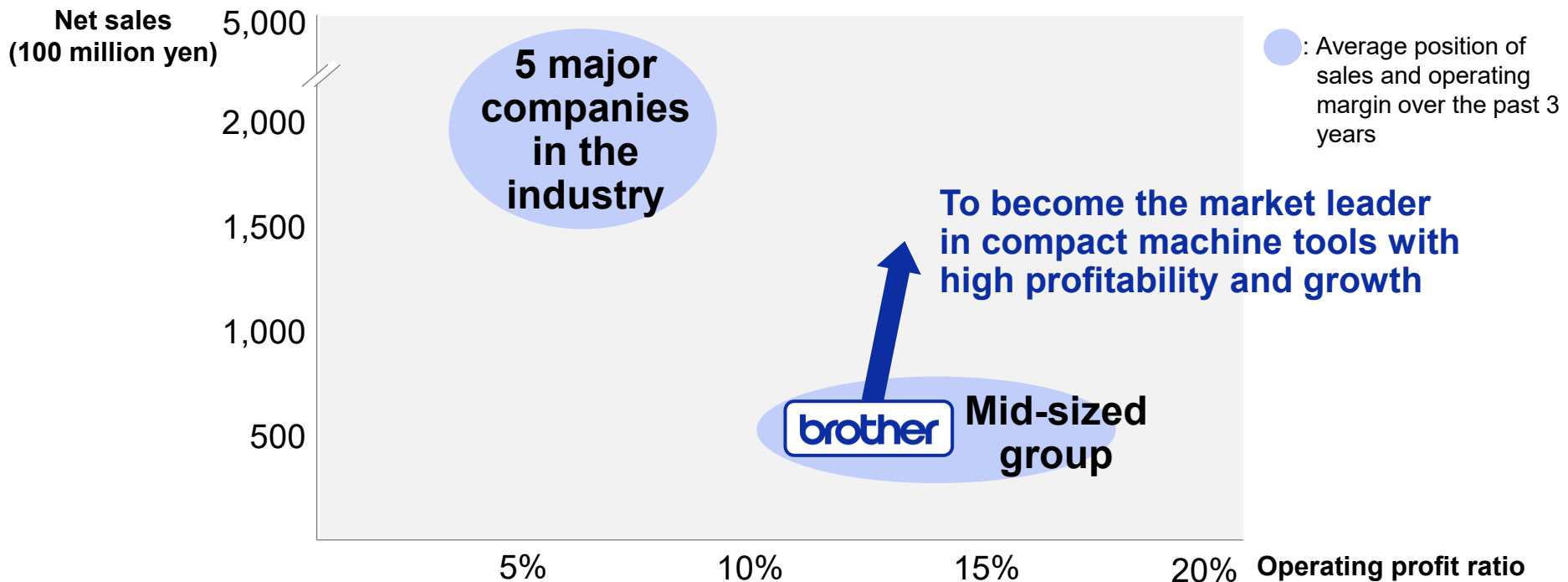
# Toward Further Growth

## Mission for 2030 (vision)

**To be a market leader in compact machining centers with the world's highest level of productivity**

- Building a position in the machine tool industry as a "Brother for compact machine tools"
- Continuing to refine strengths in compactness, productivity, and environmental performance

### Concept of the position in the machine tool industry

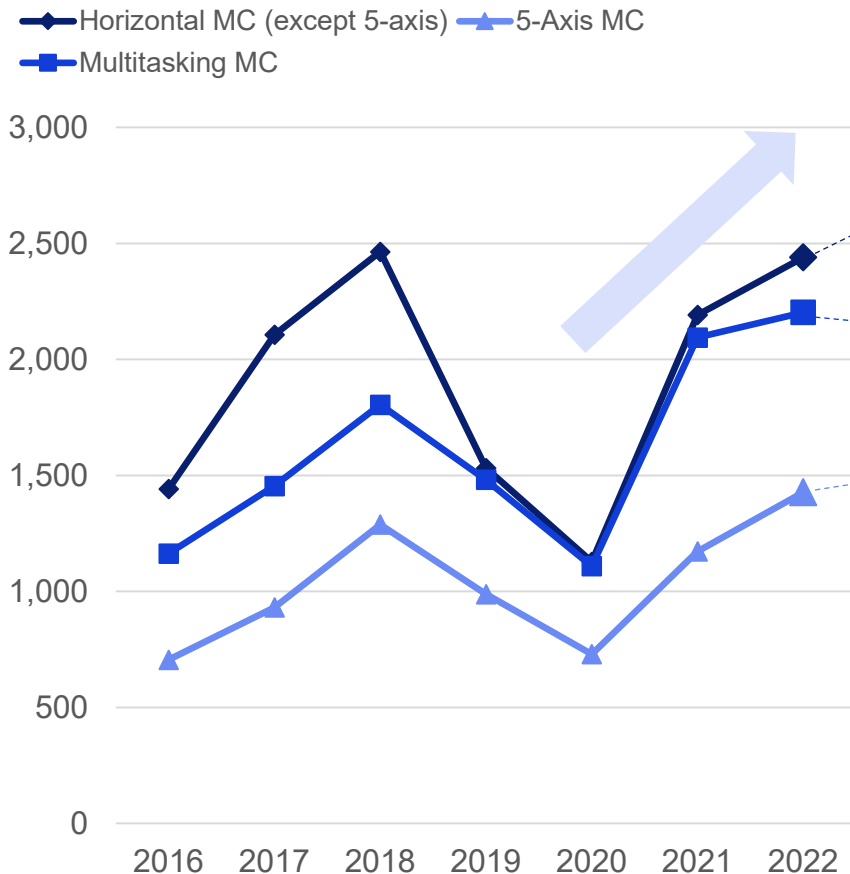


# Focus Markets for Further Growth in 2030

Focusing on 5-axis MCs, multi-tasking machines, and horizontal MCs as the market for these products is large and expected to continue to grow in the future

**Market size shift** (Total domestic and external orders received by Japanese machine tool manufacturers)

**Market size in 2022** (Total domestic and external orders received by Japanese machine tool manufacturers)



**Horizontal MC\***  
market

Approx.  
**250** billion yen

**Multitasking machine**  
market

Approx.  
**220** billion yen

**5-axis MC**  
market

Approx.  
**150** billion yen

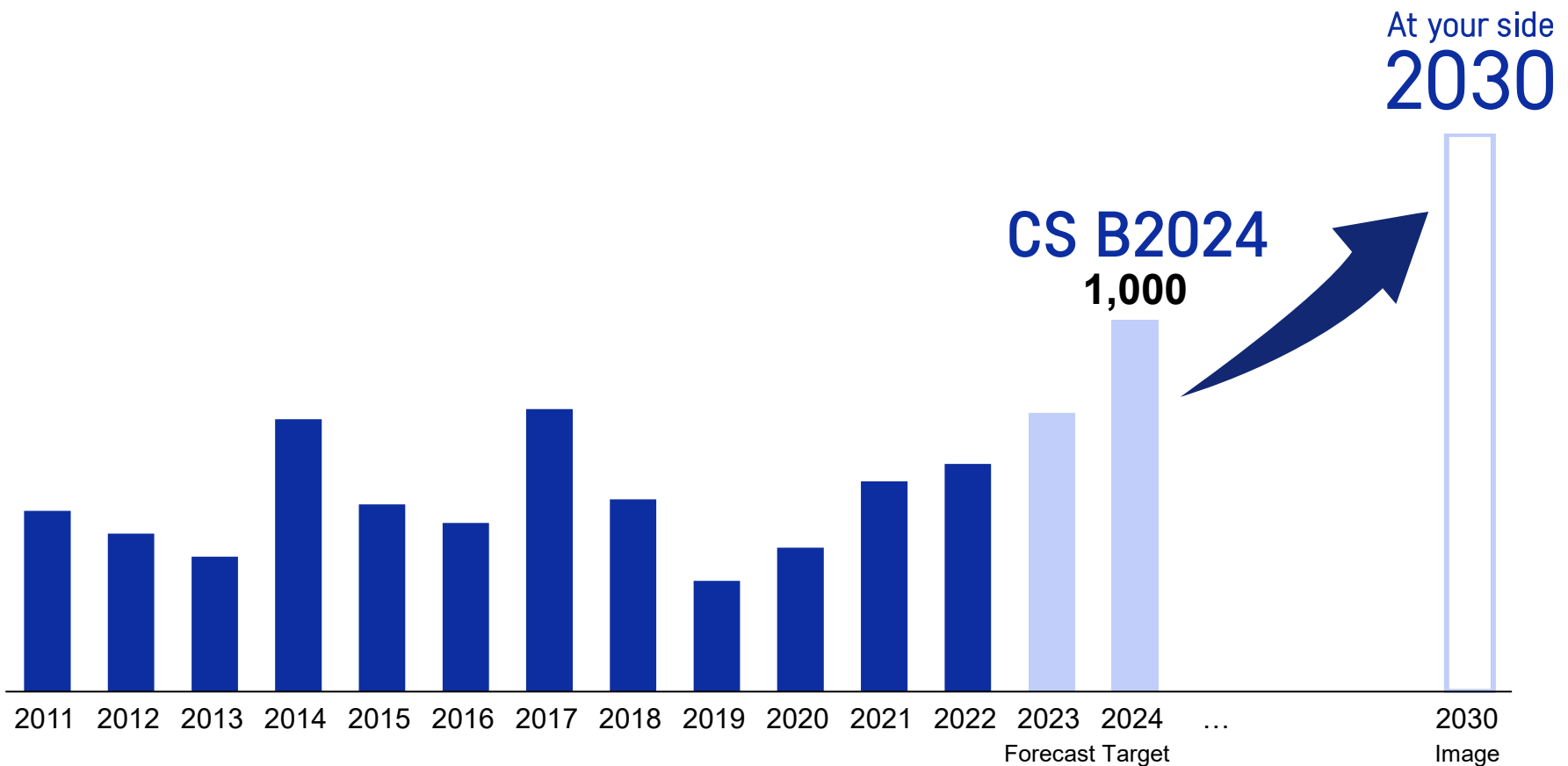
**Vertical MC\***  
market

Approx.  
**260** billion yen

\* Excluding 5-axis MCs

To be a market leader in compact machining centers  
with the world's highest level of productivity

Industrial equipment business Net sales (100 million yen)



## Strengths of SPEEDIO

Strengths achieved through commitment to BT30 and integrated development of machine and controller:

- ✓ High productivity
- ✓ Compact size
- ✓ Low power consumption

## Strategies for CS B2024

Initiatives for further growth in stable markets:

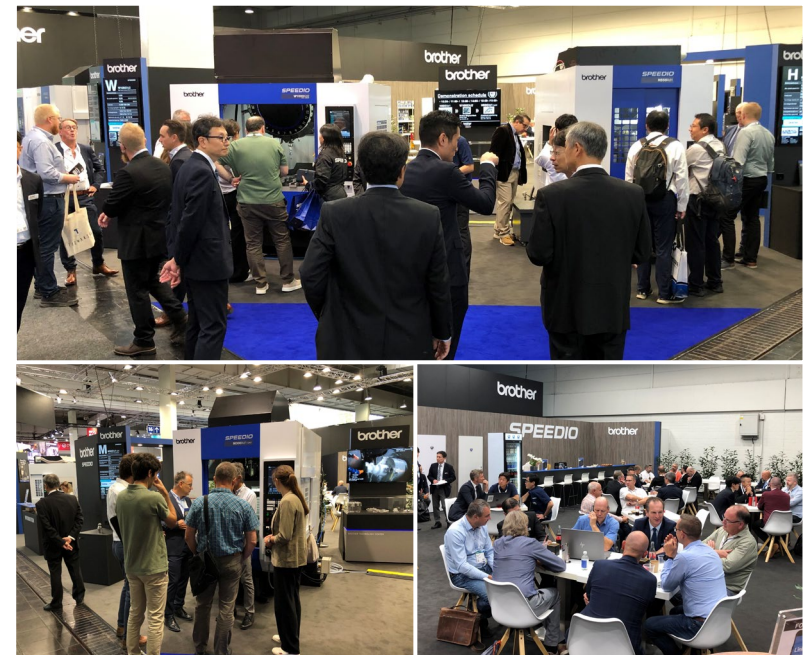
- Strengthen product lineup
- Strengthen facilities in 3 priority areas

## For 2030

- Entering a promising new market for Brother
- Expanding market share with high customer value despite being in a niche market

## [Topic] Exhibited at EMO International Machine Tool Fair

- Brother exhibited at EMO, the international trade fair for machine tools held in Hannover, Germany in September.
- It was a great opportunity for many potential customers to learn about SPEEDIO.





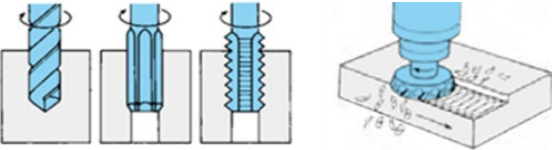


# Cutting Out the Waste

***SPEEDIO***



# Appendix

# Types of Machine Tools (Cutting Type)

Types	Major products	Main processing methods	Description
<p><b>Machining Center (MC)</b></p>	<ul style="list-style-type: none"> <li>• Vertical MC</li> <li>• Horizontal MC</li> <li>• Double column MC</li> <li>• MC-type multi-tasking machine</li> </ul>	<ul style="list-style-type: none"> <li>• Rotate the tool and process</li> </ul> 	<ul style="list-style-type: none"> <li>• Versatile and capable of machining workpieces of various shapes</li> </ul>
<p><b>Lathe</b></p>	<ul style="list-style-type: none"> <li>• NC lathe</li> <li>• Lathe-type multi-tasking machine</li> </ul>	<ul style="list-style-type: none"> <li>• Rotate and process the workpiece</li> </ul> 	<ul style="list-style-type: none"> <li>• Suitable for machining cylindrical workpieces and easy to obtain roundness</li> </ul>
<p><b>Other</b></p>	<ul style="list-style-type: none"> <li>• Grinding machine</li> <li>• Gear machines</li> <li>• Electrical discharge machine</li> <li>• FMS/specialized machine, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Grinding machine: Machining with grinding wheel tools</li> <li>• Gear machine: Machining using gear-specific tools</li> </ul> 	<ul style="list-style-type: none"> <li>• In addition to MC and lathes, there are many other products that specialize in specific machining for specific applications, although the market size is small.</li> </ul>

# Product Introduction

High speed operation and optimum control are achieved by the integrated development of machine and controller (in-house developed CNC unit), and high productivity is achieved.



S500Xd1



S300Xd1



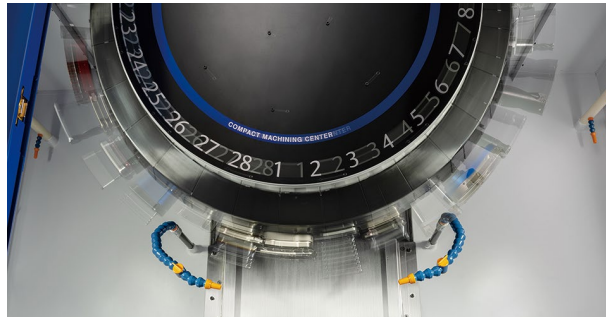
S700Xd1

## Feature

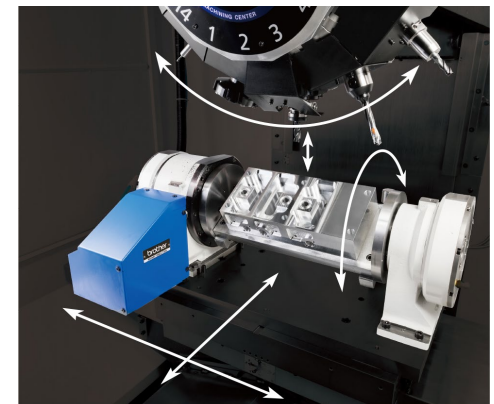
- SPEEDIO standard model with **high productivity** made possible with the integrated development of machine and controller

## Target work

- Feeder frame for semiconductor manufacturing equipment (surface mounter)
- EV inverter case
- Shower valve, etc.



Minimizes tool change time with non-stop ATC



Reduction of wast time through simultaneous operation

One of the largest machining areas in the history of BT30, allowing for greater flexibility in target parts and machining

## Feature

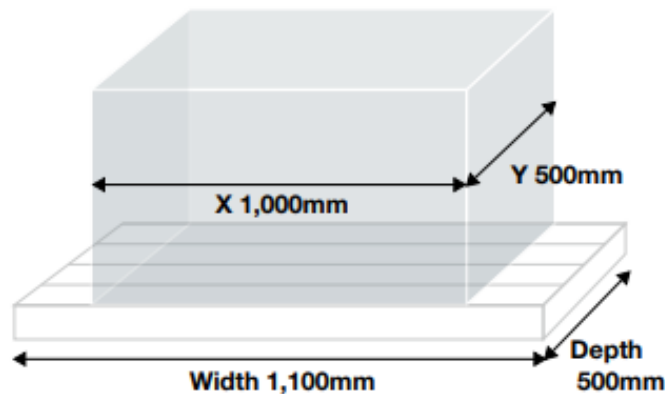
- **The largest machining** area on a BT30 spindle machine

## Target work

- Battery control box
- EV Aluminum Frame
- Shower plates for semiconductor manufacturing equipment, etc.



**W1000Xd2**



**Largest machining area  
for BT30 machine**



**Equipped with a  
28-tool magazine**

A wide variety of magazine specifications and pallet changers provide high productivity to customers in various industries



**R450Xd1**



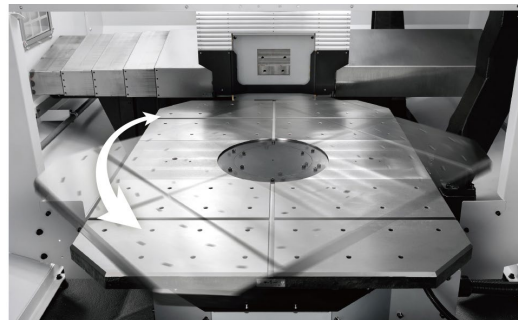
**R650Xd1**

## Feature

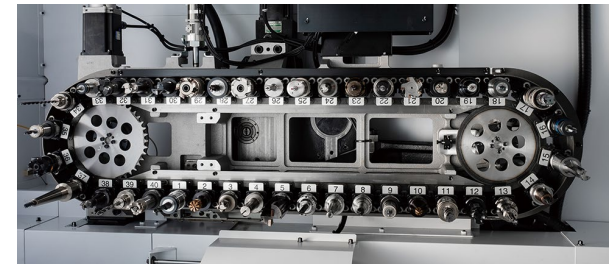
- **Equipped with** Brother's original high-speed 2-face pallet changer, achieves high productivity without stopping machining even during setup time.

## Target work

- Watch/clock plate
- Gas control valve
- EV frame, etc.



**High-speed 2-face pallet changer**



**Wide variety of magazine valuations  
(14/22/28/40-tool magazines)**

# U-Series | Universal Compact MC (Multi-face Machining)

brother  
at your side

Equipped with a tilting rotary table, the main unit remains compact while machining large, multi-surface workpieces. Accommodates the growing EV market and variable-item, variable-volume production applications

## Feature

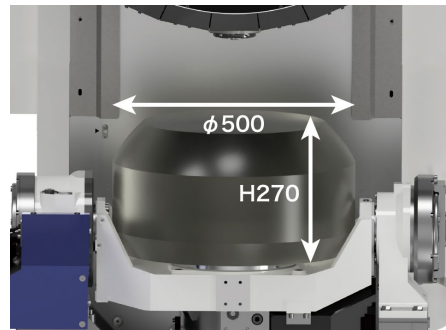
- Equipped with a tilting rotary table, the model achieves **5-axis\* indexing machining** while maintaining the same installation space and high productivity as conventional models.

## Target work

- EV gearbox housing
- Aircraft parts
- Medical bone plates, etc.



**U500Xd1**



**Tilting rotary table  
with large jig area**



**28-tool magazine**

\*: X/Y axes for back and forth movement, Z axis for vertical tool movement. A-axis/C-axis for table rotation. These 5 axes move simultaneously while machining.



High rigid machine structure enables the machining of difficult-to-cut materials such as steel

## Feature

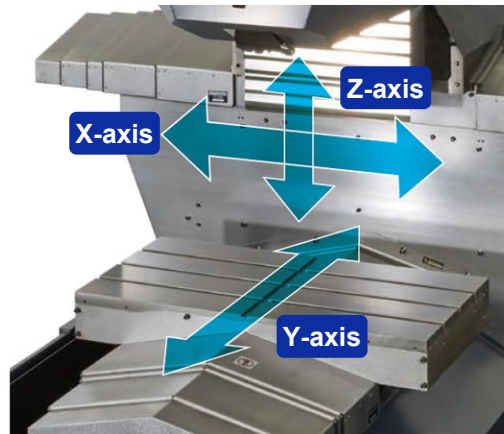
- Brother's original **high rigidity** design enables **machining of difficult-to-cut materials** while maintaining high productivity

## Target work

- Connecting rod (carbon steel)
- Molds (alloy tool steel), etc.



**F600X1**



**High rigid machine structure**

- ✓ **Mechanical rigidity: 60% increase**
- ✓ **Spindle rigidity: 50% increase**  
(compared to other models)

The number of parts that can be handled in process-integrated production has greatly increased with the introduction of the new model. Simultaneous 5-axis machining\* control model enables high-speed, high-precision machining of workpieces with complex shapes



**M200Xd1**



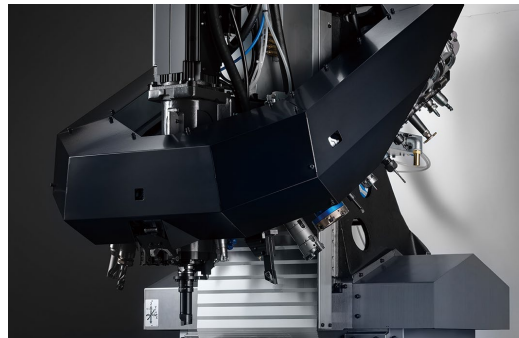
**M300Xd1**

## Feature

- **Multi-tasking machine** capable of processing from turning and milling machining to multi-face machining

## Target work

- EV motor case
- Artificial knee joint
- Gas cylinder valve, etc.



**Equipped with a 28-tool magazine**



artificial knee joint

**Simultaneous 5-axis machining allows complex machining**

\*: X/Y axes for back and forth movement, Z axis for vertical tool movement. A-axis/C-axis for table rotation. These 5 axes move simultaneously while machining.

The first BT30 horizontal MC in the SPEEDIO series was launched in April 2023. Enables multi-face machining and machining of large parts to meet various machining needs, including parts for EVs

## Feature

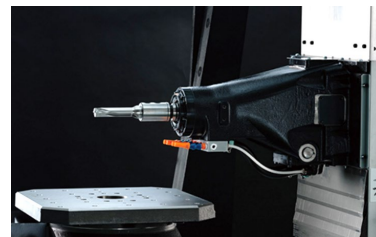
- **The large jig** area enables the machining of **big and long workpieces**, which was impossible with the conventional BT30

## Target work

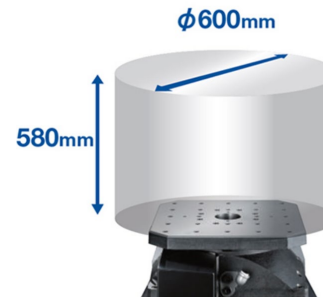
- EV gearcase
- EV battery case
- Aluminum wheels, etc.



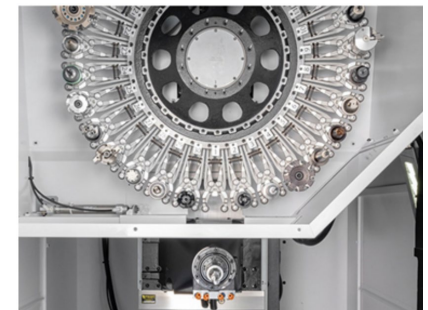
**H550Xd1**



**Horizontal spindle**



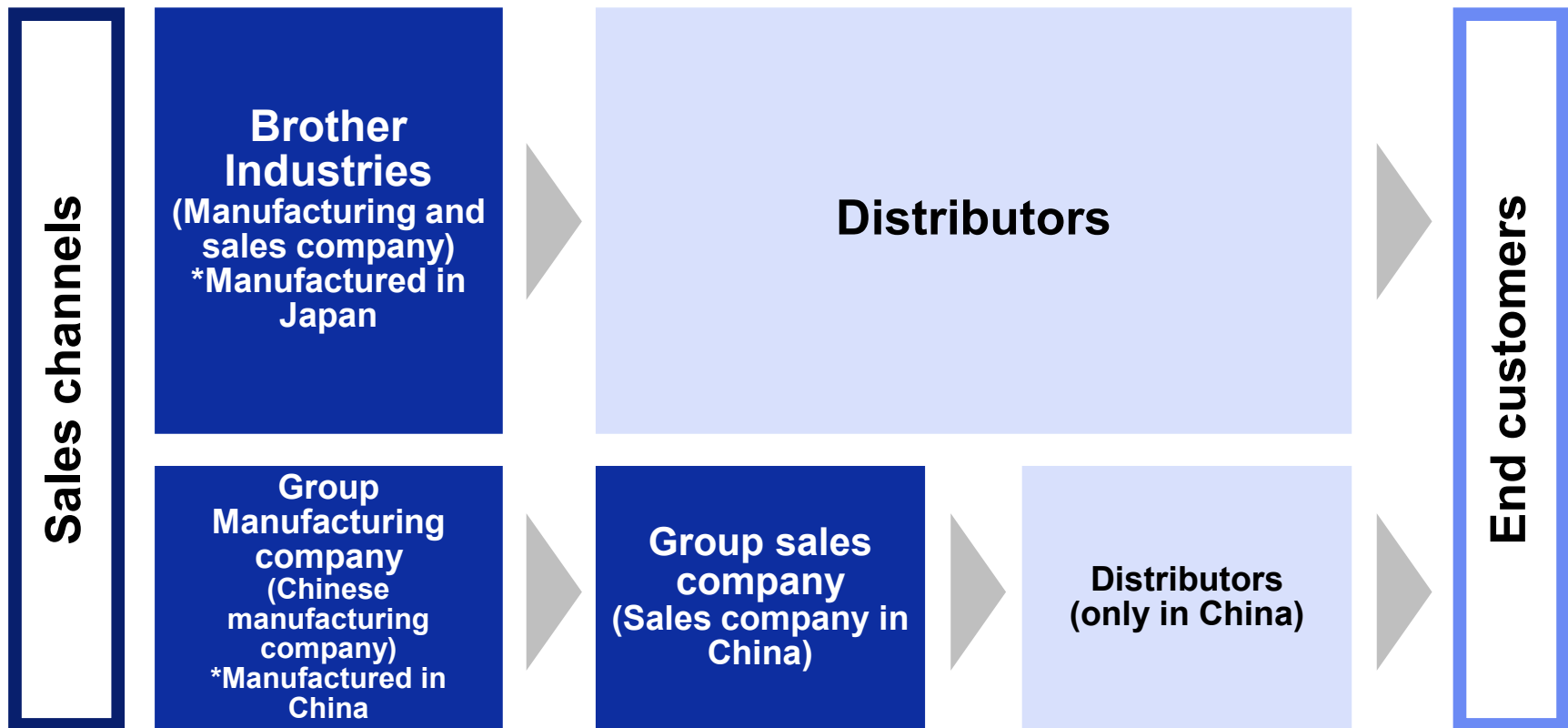
**Securing large jig area**



**Equipped with a newly developed 30-tool magazine**

# Sales Structure

No direct sales, all sales are made through distributors



# Main Sales and Service Facilities (China)

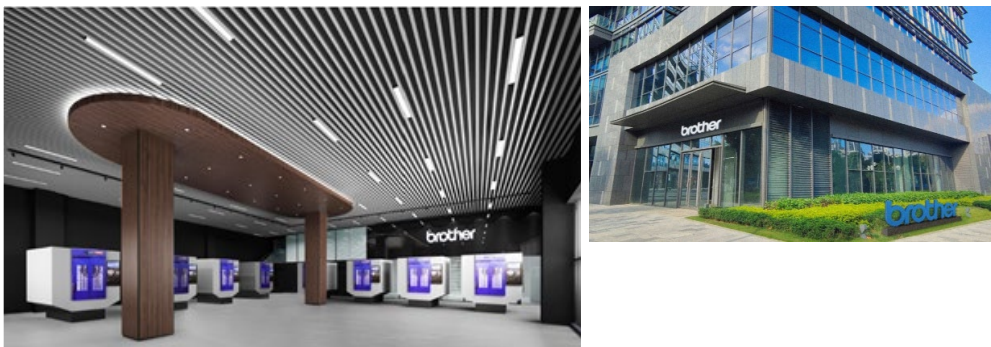
## BTC\* Shanghai



## BTC Chongqing



## BTC Dongguan



## BTC Ningbo



\*: Abbreviation for Brother Technology Center

# Main Sales and Service Facilities (India)

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## BTC Bengaluru



## BTC Gurugram



# Main Sales and Service Facilities (Japan)

## BTC Head Office (Kariya)



## BTC Sendai



## BTC Tokyo



## BTC Osaka



## BTC Northern Kanto





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