

SPEEDIO

S300Xd2	R450Xd2	U500Xd2
S500Xd2	R650Xd2	H550Xd1
S700Xd2	M200Xd1	HU550Xd1
W1000Xd2	M300Xd1	DG-1

Cutting Out the Waste

Times are changing. Are you ready?
You need a machine that's fast and compact.
With the ability to make any cut.
In this world, only the strong survive.
Make it better with SPEEDIO.

SPEEDIO

Extensive lineup further expands the potential of BT30 spindle machines, and provides customers with the best waste-free solution

* Simultaneous 5-axis spec. can be selected for models where [5AX available] is indicated.
* 100-tool magazine spec. can be selected for models where [100T available] is indicated.

S

Compact
Machining Center

S300Xd2



[5AX available]

S500Xd2



[5AX available]

S700Xd2



[5AX available]
[100T available]

W

Wide Travel
Compact Machining Center

W1000Xd2



[5AX available]

U

Universal
Compact Machining Center

U500Xd2



[5AX available]
[100T available]

R

Pallet Changing
Compact Machining Center

R450Xd2



R650Xd2



H

Horizontal
Compact Machining Center

H550Xd1



HU

Horizontal Universal
Compact Machining Center

HU550Xd1



[5AX available]

M

Compact
Multi-Tasking Machine

M200Xd1



[5AX available]

M300Xd1



[5AX available]

Deburring Center
DG-1



SPEEDIO

Blue Technology

There are many types of waste in cutting processes.

Our original NC control (machine/controller integrated development) makes operation at work sites easier, drives machine performance to the fullest, and eliminates all possible waste through optimized control.

Non-cutting time leads to wasted time.

Producing defective products leads to wasted resources.

Consuming electricity or air during stoppage of machines leads to wasted energy.

Equipment that is larger than necessary leads to wasted installation space.

SPEEDIO eliminates all these waste elements and

contributes to your profitability and reduction in global environmental impact.



Wasted time reduction



Wasted resource reduction



Wasted energy reduction



Wasted installation space reduction

SPEEDIO Blue Technology

Solves Four Waste Elements at Production Sites

Eliminating waste elements at production sites leads to reduction in greenhouse gas emissions, such as carbon dioxide and methane.

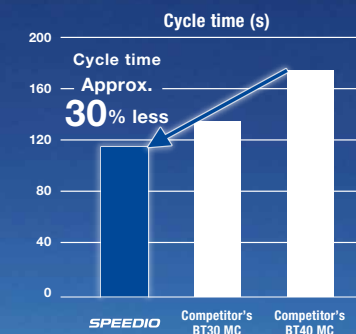
Brother's optimal and compact design reduces wasted time, resources, and energy during parts machining.

We are striving to reduce environmental impact by conducting product life cycle assessment, which quantitatively evaluates environmental impact at each stage of production, transportation, use, disposal, and recycling.

Wasted time reduction



Wasted time is reduced by minimizing non-cutting time in the machining cycle time and reducing setup time and downtime.



SPEEDIO
Recovery Tools
Recovery Support



SPEEDIO
Setup Tools
Setup Support

Wasted resource reduction



Wasted resources are reduced by using machining adjustment support that prevents cutting defects and production support such as real-time monitoring.



SPEEDIO
Production Tools
Production Support



SPEEDIO
Adjust Tools
Adjustment Support

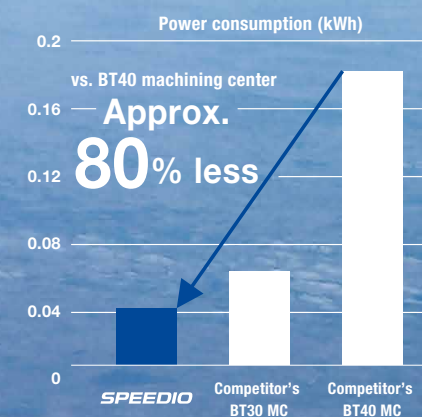


SPEEDIO
Recovery Tools
Recovery Support

Wasted energy reduction



Optimal design eliminates all waste, including excessive power consumption and air flowrate, achieving industry-leading energy-saving performance.



Wasted installation space reduction



Compact design reduces wasted space with less restrictions on installation locations.



^{*1} Dimension including coolant tank

^{*2} Compared to BT40 horizontal MC with equivalent travels



Wasted Time Reduction

The lightweight and low-inertia features of BT30 machines and our original NC drive machine performance to the fullest. All possible wasted time is reduced by shortening machining cycle time, improving efficiency of setup work, and supporting recovery from downtime.

Reduction in cycle time

Cycle time is reduced significantly by non-stop ATC for high-speed tool change, high acceleration/deceleration spindle for faster spindle start/stop, and simultaneous operation for eliminating wasted time. Provided with a variety of NC functions that reduce cycle time, including optimum acceleration setting and machining support without warmup.

Non-stop ATC



High acc/dec spindle



Simultaneous operation



Reduction in setup time / downtime



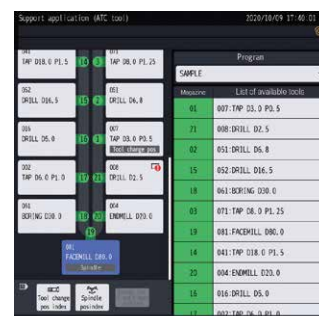
SPEEDIO
Setup Tools
Setup Support



SPEEDIO
Recovery Tools
Recovery Support

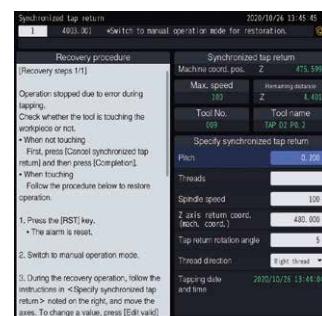
ATC tool app

You can easily perform magazine tool registration, tool data editing, and magazine tool removal/attachment operation on one screen.



Recovery support app

Recovery work instructions are displayed to reduce machine downtime.



Wasted Energy Reduction

Equipped with various energy-saving functions, including a power regeneration system. Air consumption optimized by eliminating any unnecessary functions reduces wasted energy.

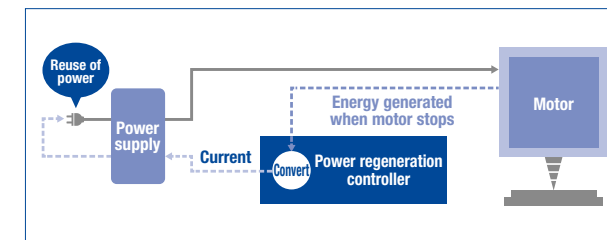
Saving power

Highly efficient spindle motor provides fast response to rotation and stop, achieving highly efficient cutting with less power. Equipped with a power regeneration system that recycles energy generated when a servo motor decelerates.

Highly efficient spindle motor



Power regeneration system



Energy-saving NC functions

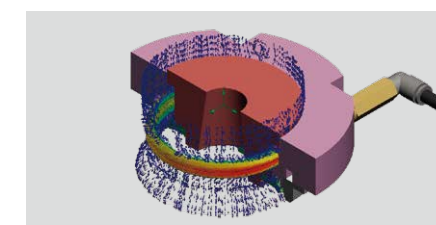
Standby mode	Turns the servomotor off when the machine is not operated for the preset time.
Automatic work light off	Turns the work light off when the preset time elapses.
Automatic power off	Turns the NC power off at the preset time.
Automatic display off	Turns the backlight of the screen off when the screen is not operated for the preset time.
Automatic coolant off	Turns the coolant pump off when the preset time elapses.
Energy savings mode	Turns energy-saving functions on and off simultaneously.
Chip shower energy savings operation	Controls the on/off timing of the chip shower pump.

Saving air

Air related functions have been reviewed and optimized to eliminate any waste, leading to reduction in air consumption.

Air purge

Flowrate analysis achieves a highly airtight structure that prevents coolant from entering the spindle, significantly reducing the amount of air used.



Spindle air blow

Cleaning power has been enhanced by discharging three times the conventional volume of air only when required, while halving the total amount of air used.



Wasted Resource Reduction

Wasted resources are reduced by achieving high reliability through maintenance functions that prevent machining defects, failures, and possible operational mistakes in daily production sites.

Defect reduction / Preventive maintenance



SPEEDIO
Production Tools
Production Support



SPEEDIO
Adjust Tools
Adjustment Support



SPEEDIO
Recovery Tools
Recovery Support

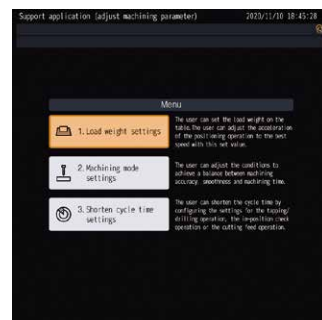
Stuck chips detection function

Detects chips caught between the spindle and the holder during ATC without using a sensor.



Machining parameter adjustment app

You can easily set the optimal acceleration or adjust the balance of machining accuracy and surface quality.



ATC tool monitoring

Checks the presence of a spindle tool without using a sensor.

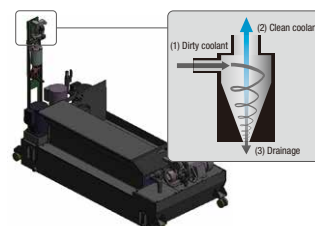


Effective use of resources

Automatic grease lubricator that optimizes consumption



Tank with cyclone filter and no consumables

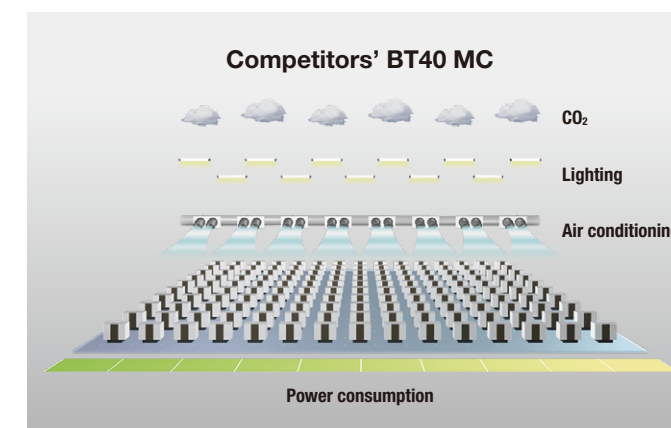
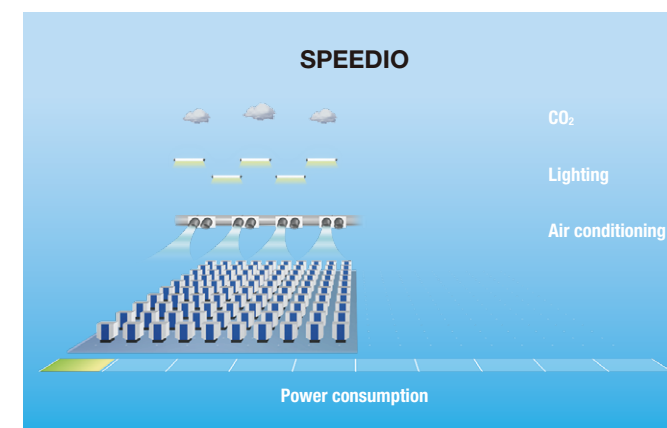


Wasted Installation Space Reduction

Compact design reduces wasted space with less restrictions on installation locations.

Compact design

Compact design allows machines to be installed efficiently even in limited space. When building a new factory, the floor space can be reduced, which requires less lighting and air conditioning, leading to factory-wide energy saving.



A wide range of SPEEDIO series is available to meet customers' purposes, such as best-selling model, wide travel model, pallet changing model, multi-tasking model, and horizontal model. With an extensive lineup that further expands the possibilities of BT30 machines, we provide customers with optimum waste-free solutions.

S High performance model suitable for a broad range of machining applications
Extensive spindle specifications and machine sizes
Further pursuing high productivity
and high reliability

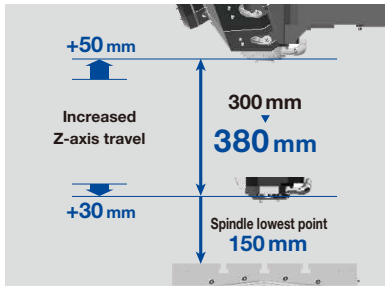


Increased Y/Z-axis travels

The Y-axis travel has been increased from 400 mm to 450 mm. The Z-axis travel can be selected from 300 mm and 380 mm. These expand the range of target workpieces.

Y-axis travel
450 mm
Z-axis travel
300 mm (standard) 380 mm (optional) *1

*1. Cannot be selected for the S300Xd2.



* When Z-axis 380 mm spec. is selected

28-tool magazine *2

The 28-tool magazine is a compact turret magazine that achieves high-speed tool change. The maximum tool weight is 4 kg. 14-tool, 21-tool, 28-tool *2, and 100-tool *3 magazine specifications are available.



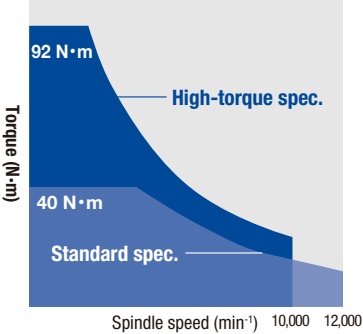
*2. The 28-tool magazine cannot be selected for the S300Xd2.

*3. The 100-tool magazine can only be selected for the S700Xd2-100T. See page 12 for details.

Newly developed and highly efficient 20,000 min⁻¹ spindle motor

A new 20,000 min⁻¹ spindle motor has been developed. Compatible with the Coolant Through Spindle (CTS), this motor further improves productivity of small-diameter drilling. A variety of spindle specifications are available, including the standard 12,000 min⁻¹ spec., optional high-torque spec. and 27,000 min⁻¹ spec. By improving the spindle clamp force by 15%, the spindle rigidity has been enhanced, enabling the machine to demonstrate its capabilities in a broad range of machining applications.

Motor torque characteristics

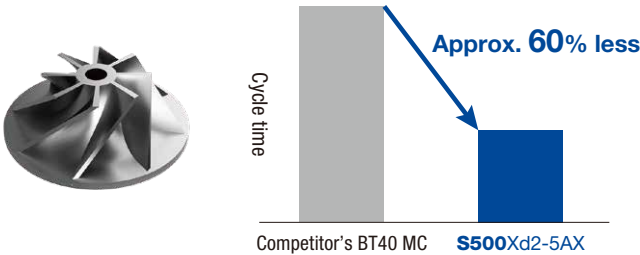


High-torque spec. (optional)
Max. torque 92 N·m
Max. output 26.2 kW
20,000 min ⁻¹ spec. (optional)
Max. torque 27 N·m
Max. output 15.4 kW
12,000 min ⁻¹ spec. (standard)
Max. torque 40 N·m
Max. output 18.9 kW

Simultaneous 5-axis machining *4

Equipped with functions required for simultaneous 5-axis machining, including tool center point control where machining is performed by changing the tool direction relative to the workpiece, look-ahead max. 1,000 blocks, and submicron command.

*4. Available only on the S300/S500/S700Xd2-5AX.

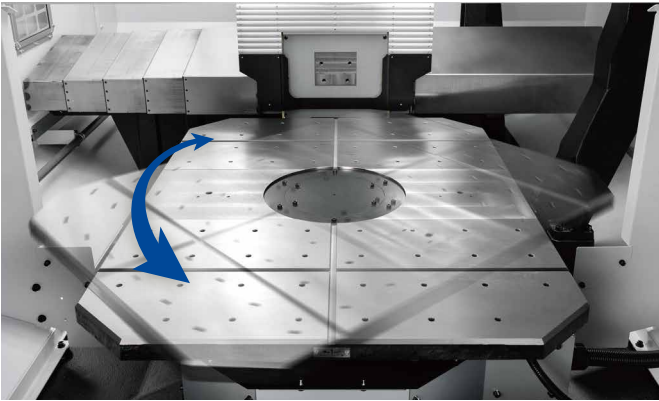
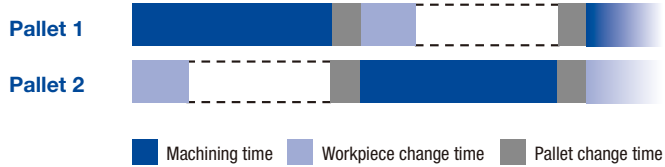


R Non-stop machining model equipped with a pallet changer
Extensive magazine variation
further promotes process integration



Non-stop machining

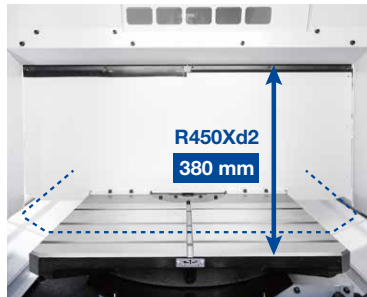
The QT (Quick Turn) table is a turntable type high-speed 2-face pallet changer. Optimized acceleration/deceleration control achieves much faster pallet change. To ensure high reliability, effects by chips etc. are minimized by a turntable that avoids lift-up motion and has a sealed structure, and positioning accuracy is maintained by the stopper mechanism. Workpieces on one pallet can be changed while machining workpieces on the other pallet. Waste in workpiece change time is eliminated, enabling non-stop machining.



Pallet change time	R450Xd2 2.7 s
	R650Xd2 3.1 s

Large jig area

Even if the jig protrudes from the table, it can be mounted as long as it is within the pallet turning diameter. The jig area can be further expanded by selecting a low table option that increases the jig height or a turning diameter enlargement option that increases the jig space.



Max. jig height *1
R450Xd2 380 mm
R650Xd2 450 mm

*1. The values shown here are for low table specifications.

Extensive magazine variation *2
(14/22/28/40-tool magazines)

An extensive range of magazine specifications are available, including a 40-tool magazine. This promotes process integration, taking advantage of a 2-face pallet changer, and encourages productivity improvement.



*2. The 40-tool magazine is only available for the R650Xd2.

M Mass production type multi-tasking machine encourages process integration
Newly developed magazine and new controller further encourage process integration



M200Xd1



M300Xd1

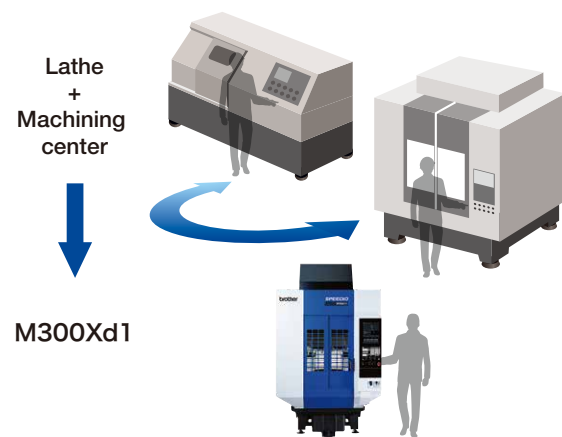


(Awarded to M200Xd1)

The iF Design Award is an international design award established in 1953 by iF International Forum Design GmbH of Germany.

Complex machining

Turning and milling can be completed through one-time chucking on one machine. There is no handling between turning and milling, leading to various advantages.



Machine structure

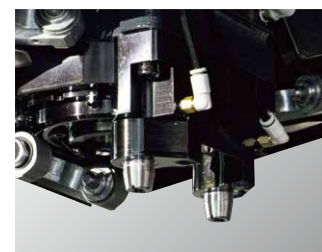
A roller gear cam is used for the tilt axis (A-axis), a DD motor for the turning spindle (C-axis), and an original double plunger lock to secure turning tools.

Turning spindle (C-axis)



A high-speed and high-power built-in DD motor is used for the turning spindle (C-axis). Enabling efficient turning and high-speed indexing.

Double plunger lock



An original double plunger lock is used to secure turning tools, achieving excellent tool change repeatability.

Simultaneous 5-axis machining ^{*1}

Equipped with functions required for simultaneous 5-axis machining, including tool center point control where machining is performed by changing the tool direction relative to the workpiece, look-ahead max. 1,000 blocks, and submicron command.



Artificial bone



Skiving

Spindle/turning spindle synchronized control (optional)

Synchronized rotation of the spindle and turning spindle at the instructed rotation ratio enables gear cutting, such as hobbing and skiving.

A-axis clamp (optional)

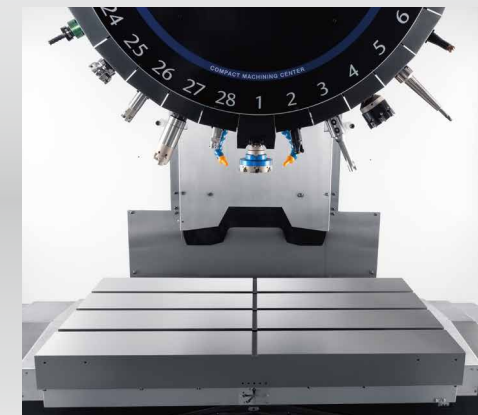
The mechanical clamp plus servo clamp method enables the machine to demonstrate high machining capabilities in high-load machining and stable lathe turning, improving machining accuracy. A double type clamp mechanism, where clamps are provided on the left and right sides, is available to further enhance high machining capabilities.

A-axis clamp torque

Single	695 N·m
Double	975 N·m

^{*1}. Available only on the M200Xd1-5AX/M300Xd1-5AX.

W Wide travel model with the largest machining area among BT30 machines
Unprecedented large machining area enables highly productive machining from small to large parts



W1000Xd2



A variety of machining from small to large workpieces

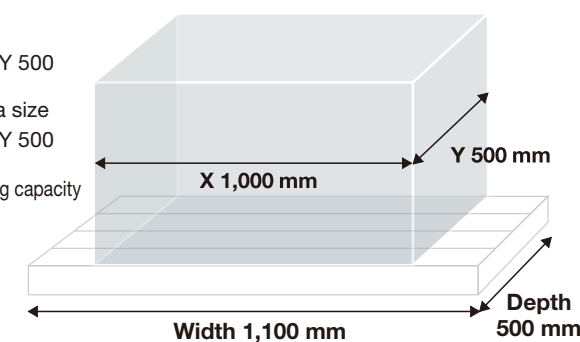
Machine's abilities to handle large workpieces and high-mix small-volume products have been further enhanced by the largest travels of any BT30 machines at X1,000 mm and Y500 mm, maximum loading capacity of 500 kg, and increased Z-axis travel.

Ample travels and table size

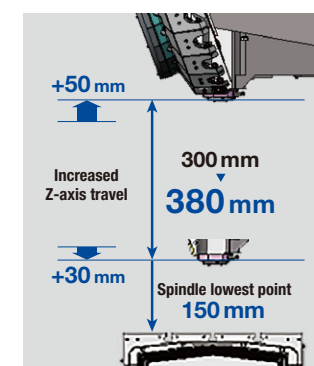
Travels
X 1,000 Y 500

Work area size
X 1,100 Y 500

Max. loading capacity
500 kg



Increased Z-axis travel



Z-axis travel
300 mm ▶ 380 mm

Machining of large workpieces



Multi-part machining of small workpieces



A broad range of machining

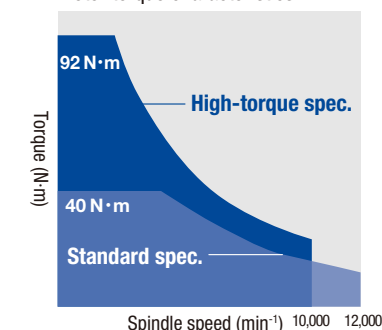
With features such as a turret-type 28-tool magazine for high-speed tool changes, a high-power spindle motor available in 20,000 min⁻¹ and high-torque specifications, and improved spindle rigidity, the machine is now also capable of simultaneous 5-axis machining, enabling support for an even wider range of machining operations.

28-tool magazine

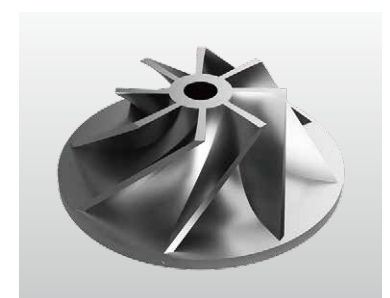


High-power spindle motor

Motor torque characteristics



Simultaneous 5-axis machining ^{*1}



Impeller

^{*1}. Available only on the W1000Xd2-5AX.

U Equipped with tilting rotary table with jig area of max. $\phi 500$ mm
**Performs universal indexing,
encouraging process integration**



U500Xd2



Process integration for multi-face machining

Less space achieved although the machine is equipped with a high-speed and highly accurate tilting rotary table with ample jig area and a newly developed 28-tool magazine. One-clamp machining encourages process integration.

Tilting rotary table

Roller gear cam mechanism is used for A and C axes, achieving high retention strength and backlash-free high-speed and highly accurate indexing.

Max. rotary speed		
A-axis	50 min ⁻¹	C-axis 75 min ⁻¹
0 to 90-deg. indexing time		
A-axis	0.9 s	C-axis 1.2 s

Expanded jig area

Increased Y- and Z-axis travels provide ample jig area of up to 500 mm in diameter and 320 mm in height. This enables multi-face machining for medium-sized workpieces.



28-tool magazine

The 28-tool magazine is a compact turret magazine that achieves high-speed tool change. The maximum tool weight is 4 kg. 14-tool, 21-tool, 28-tool, and 100-tool *1 magazine specifications are available.

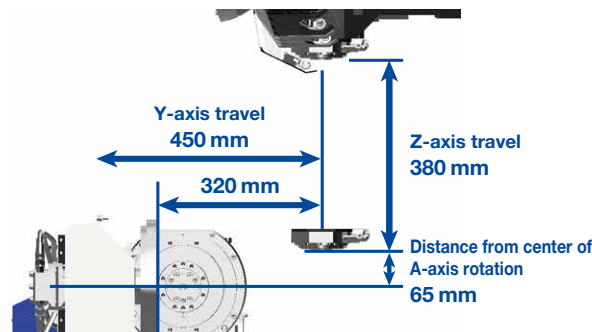


*1. The 100-tool magazine can only be selected for the U500Xd2-100T.
See page 12 for details.

Increased Y/Z-axis travels

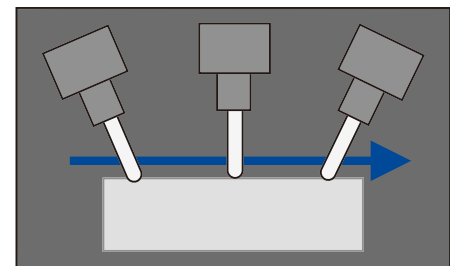
Increased Y- and Z-axis travels provide ample machining area and better tool accessibility.

Z-axis travel	300 mm (previous model)	▶ 380 mm
Y-axis travel	400 mm (previous model)	▶ 450 mm



Simultaneous 5-axis machining *2

Equipped with functions required for simultaneous 5-axis machining, including tool center point control where machining is performed by changing the tool direction relative to the workpiece, look-ahead max. 1,000 blocks, and submicron command.

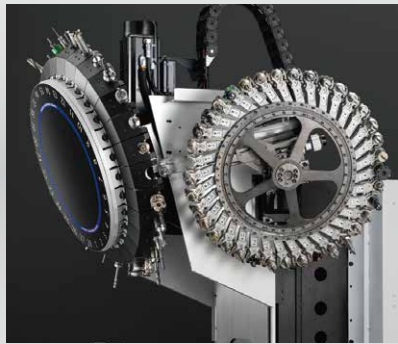


*2. Available only on the U500Xd2-5AX.

**Newly developed 100-tool magazine *1
achieves space saving and high productivity**

The new 100-tool magazine specifications have been prepared for the S700Xd2 and U500Xd2. Achieves space saving and high productivity, contributing to high-mix small-lot production.

*1. Mounted only on the S700Xd2-100T and U500Xd2-100T.
Conversation language not available on the S700Xd2-100T and U500Xd2-100T.



S700Xd2-100T

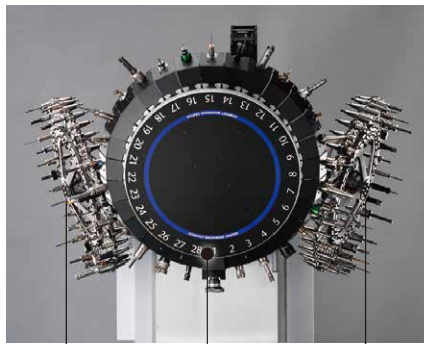


U500Xd2-100T

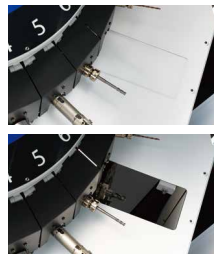
Newly developed 100-tool magazine

A tool stoker that can store 36 tools is installed on the right and left sides of the 28-tool turret magazine, enabling storage of 100 tools, the largest capacity in the SPEEDIO series.

Brother's original tool handling mechanism achieves stable tool change.



Left-side tool stoker Turret magazine Right-side tool stoker



The tool stoker is separated from the machining chamber by the stoker shutter.

Space-saving design

Tool stockers are installed inside the machine to save space while storing 100 tools.



*2. Does not include coolant tank and chip conveyor.
*3. Compared to BT40 vertical machining center with equivalent tool storage capacity.

Improving efficiency of high-mix small-lot production

The 100-tool magazine eliminates the need for frequent tool changes in high-mix small-lot production. This reduces setup time and improves production efficiency.

Example of high-mix small-lot workpieces

Communication equipment	Hydraulic/pneumatic equipment
 Relay box 160 x 75 x 35	 Stainless steel valve 75 x 35 x 35
Medical instrument	Semiconductor
 Knee joint 65 x 60 x 50	 Transfer equipment parts 133 x 60 x 30

Pallet changer PC-1 (optional) *4

Storing 40 pallets enables long-period operation, improving efficiency of high-mix small-lot production and saving manpower.
Pallet jig size: 200 mm/width, 200 mm/depth, 200 mm/height



Storing 40 pallets

*4. Available only on the S700Xd2-100T, U500Xd2, and U500Xd2-100T. Available only in Japan.
Raising of the PC-1 and the SPEEDIO main unit is not supported.

H

Ample jig area and a newly developed magazine enable multi-face machining of large or long workpieces.
New style of SPEEDIO
Horizontal Compact Machining Center now available



H550Xd1

B-axis table (standard) and ample jig area

The B-axis table with a roller gear cam mechanism is provided standard, achieving an ample jig area of $\phi 600 \times 580$ mm. *1
 The jig area can be expanded to $\phi 800$ mm by moving the tool to a safe position, etc. *2
 The maximum table loading capacity is 400 kg.



30-tool magazine

Equipped with the newly developed direct ATC type 30-tool magazine. Supports maximum tool length of 250 mm, maximum tool diameter of 125 mm, and maximum tool weight of 4 kg, enabling a variety of machining, including long workpieces.



Space saving

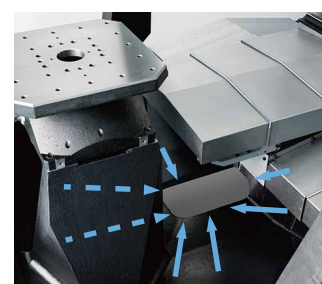
Machine dimensions are 1,557 mm in width and 2,990 mm in depth, achieving reduction in space while maintaining ample jig and machining areas.



Chip evacuation performance

Designed to prevent problems caused by chips by enhancing chip evacuation performance with a magazine cover that separates the magazine from the machining chamber, a center trough structure, and a head shower (optional) that removes chips from the spindle head.

Center trough structure



Head shower



HU

Horizontal machining center equipped with $\phi 680$ mm tilting rotary table as standard
Enables multi-face machining of large or long workpieces, going beyond the conventional limits of BT30 machines.

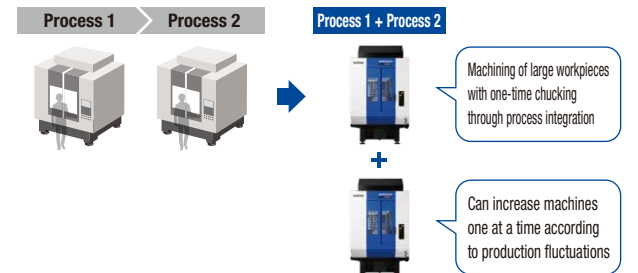


HU550Xd1



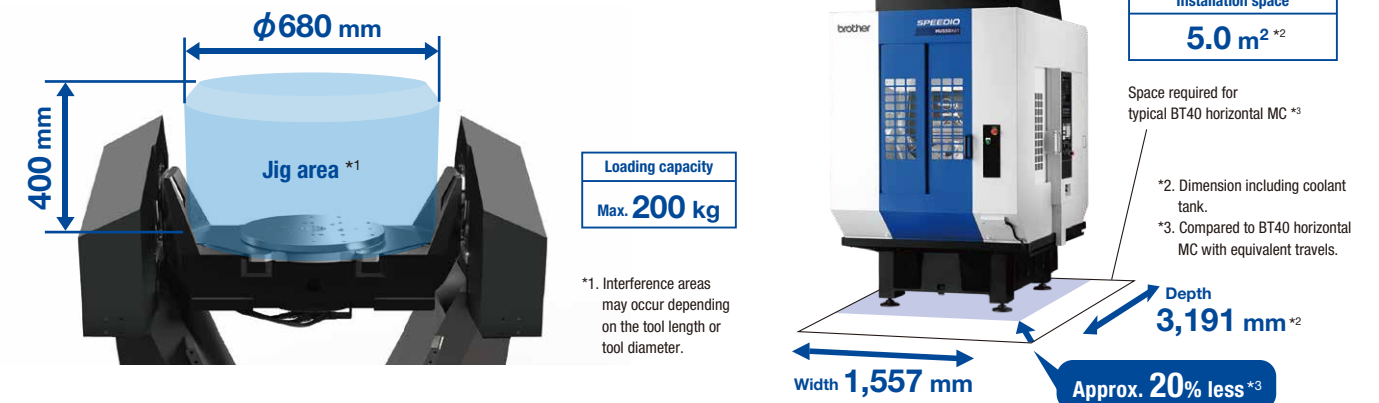
Advantages of utilizing the HU550Xd1

- [1] Enables machining of large/long workpieces within less space.
- [2] Achieves highly accurate machining with one-time chucking through process integration.
- [3] Easily adapts to production fluctuations or variations in workpiece geometry.



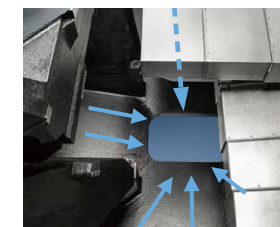
Ample jig area and space-saving design

While offering a large jig area of $\phi 680 \times 400$ mm, the machine also achieves a compact, space-saving design.



Chip evacuation performance

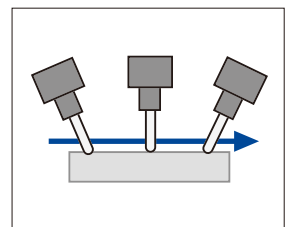
Chip evacuation has been enhanced by features such as two 400 W pumps and optimally arranged piping, a center trough structure, and a head shower (optional) that removes chips from the spindle head.



Center trough structure

Simultaneous 5-axis machining

Equipped with functions required for simultaneous 5-axis machining, including tool center point control where machining is performed by changing the tool direction relative to the workpiece, look-ahead max. 1,000 blocks, and submicron command.



TCP control

Machine specifications (S series)

Item			S300Xd2 S300Xd2 RD *9 S300Xd2-5AX S300Xd2-5AX RD *9	S500Xd2 S500Xd2 RD *9 S500Xd2-5AX S500Xd2-5AX RD *9	S700Xd2 S700Xd2 RD *9 S700Xd2-5AX S700Xd2-5AX RD *9	S700Xd2-100T S700Xd2-100T RD *9 S700Xd2-5AX/100T S700Xd2-5AX/100T RD *9
CNC unit			《S300/S500/S700Xd2》CNC-D00			《S300/S500/S700Xd2-5AX》CNC-D00v (DB)
Travels	X axis	mm(inch)	300 (11.8)	500 (19.7)		700 (27.6)
	Y axis	mm(inch)	450 (17.7)			
	Z axis	mm(inch)	300 (11.8)	300 (11.8)	380 (15.0)	380 (15.0)
	Distance between table top and spindle nose end	mm(inch)	180~480 (7.1~18.9)	180~480 (7.1~18.9)	150~530 (5.9~20.9)	180~480 (7.1~18.9) 150~530 (5.9~20.9)
Table	Work area size	mm(inch)	600 x 450 (23.4 x 17.7)		800 x 450 (31.4 x 17.7)	
	Max. loading capacity (uniform load)	kg(lbs)	250 [300 *6] (551 [661 *6])		250 [400 *6] (551 [881 *6])	
Spindle	Spindle speed	min ⁻¹	12,000 min ⁻¹ spec.: 1~12,000 10,000 min ⁻¹ high-torque spec. (optional): 1~10,000 20,000 min ⁻¹ spec. (optional): 1~20,000 27,000 min ⁻¹ spec. (optional): 1~27,000 (27,000 min spec. cannot be selected for Z-axis 380 mm spec. models)			12,000 min ⁻¹ spec.: 1~12,000 10,000 min ⁻¹ high-torque spec. (optional): 1~10,000 20,000 min ⁻¹ spec. (optional): 1~20,000
	Speed during tapping	min ⁻¹	MAX 6,000 (27,000 min ⁻¹ spec.: MAX 8,000)			MAX 6,000
	Tapered hole		7/24 tapered N0.30			7/24 tapered N0.30
	BT dual contact spindle (BIG-PLUS)		Optional			Optional
	Coolant through spindle (CTS)		Optional (CTS cannot be selected for 27,000 min ⁻¹ spec. models)			Optional
	Feed rate	Rapid traverse rate (XYZ axes)	m/min(inch/min)	50 x 50 x 56 (1,969 x 1,969 x 2,205)		
	Cutting feed rate	mm/min(inch/min)	X, Y, Z: 1~30,000 (0.04~1,181) *7			X, Y, Z: 1~30,000 (0.04~1,181) *7
ATC unit	Tool shank type		MAS-BT30			MAS-BT30
	Pull stud type *4		MAS-P30T-2			MAS-P30T-2
	Tool storage capacity	pcs.	14 / 21	14 / 21 / 28		100 *12
	Max. tool length *1	mm(inch)	160 (6.3) [21 tool] 250 (9.8) [14 tool]	250 (9.8)		250 (9.8)
	Max. tool diameter *1	mm(inch)	110 (4.3)			Turret magazine: 110 (4.3), Tool stocker: 60 (2.3) / 110 (4.3) (No adjacent tool)
	Max. tool weight *1	kg(lbs)	3.0 (6.6) [4.0 (8.8) *10] / tool, <TOTAL TOOL WEIGHT: 25 (55.1) for 14 tools, 35 (77.2) for 21 or 28 tools>			Turret magazine: 3.0 (6.6) [4.0 (8.8) *10] / tool, <Total tool weight: 35 (77.2)> Tool stocker: 4.0 (8.8) / tool, <Total tool weight: 50 (110.2)>
	Tool selection method		Random shortcut method			Random shortcut method
Tool change time *5	Tool To Tool	sec	0.6 / 0.7 (14 or 21 tools / 28 tools)			0.7 *13
	Chip To Chip	sec	Z-axis 300 mm spec.: 1.2 / 1.3 (14 or 21 tools / 28 tools) Z-axis 380 mm spec.: 1.3 / 1.4 (14 or 21 tools / 28 tools)			1.4 *13
Electric motor	Main spindle motor (10 min/continuous) *2	kW	12,000 min ⁻¹ spec.: 10.1 / 7.0 10,000 min ⁻¹ high-torque spec. (optional): 12.8 / 9.2 20,000 min ⁻¹ spec. (optional): 7.4 / 5.1 27,000 min ⁻¹ spec. (optional): 8.9 / 6.3			12,000 min ⁻¹ spec.: 10.1 / 7.0 10,000 min ⁻¹ high-torque spec. (optional): 12.8 / 9.2 20,000 min ⁻¹ spec. (optional): 7.4 / 5.1
	Axis feed motor	kW	X,Y axis: 1.0 Z axis: 2.0			X,Y axis: 1.0 Z axis: 2.0
Power source	Power supply		200 to 230 VAC ±10%, 3 phase, 50/60 Hz±2%			200 to 230 VAC ±10%, 3 phase, 50/60 Hz±2%
	Power capacity (continuous)	kVA	10.4			10.4
	Air supply	Regular air pressure MPa	0.4~0.6 (recommended value 0.5 MPa *8)			0.4~0.6 (recommended value 0.5 MPa *8)
		Required flow L/min	40 (27,000 min ⁻¹ spec.: 115)			40
Machine dimensions	Height	mm(inch)	Z-axis 300 mm spec.: 2,529 (99.6) Z-axis 380 mm spec.: 2,568 (101.1)			2,568 (101.1)
	Required floor space *11 (with control unit door open)	mm(inch)	1,080 x 2,161 [2,999] (42.5 x 85.1 [118.1])	1,560 x 2,081 [2,919] (61.4 x 81.9 [114.9])	2,050 x 2,081 [2,919] (80.7 x 81.9 [114.9])	
	Weight (with BV7-870Ad)	kg(lbs)	2,350 (5,181) [2,650 (5,843)]	2,400 (5,292) [2,700 (5,953)]	2,550 (5,622)	
Accuracy *3	Accuracy of bidirectional axis positioning (ISO230-2: 1988)	mm(inch)	0.006~0.020 (0.00024~0.00079)			0.006~0.020 (0.00024~0.00079)
	Repeatability of bidirectional axis positioning (ISO230-2: 2014)	mm(inch)	Less than 0.004 (0.00016)			Less than 0.004 (0.00016)
Front door			2 doors			
Standard accessories			Instruction Manual (DVD 1 set), leveling bolts (4 pcs.), leveling plates (4 pcs.)			

*1. The maximum tool length, maximum diameter, and maximum weight are limited depending on the spindle speed in use, configuration, center of gravity, etc. The figures shown here are for reference only. Please contact your local distributor for details. *2. Spindle motor output differs depending on the spindle speed. *3. Measured in compliance with ISO standards and Brother standards. Please contact your local distributor for details. *4. Brother specifications apply to the pull studs for CTS. *5. Measured in compliance with JIS B6336-9 and MAS011-1987. *6. Parameter adjustment is required. (Acceleration adjustment and positioning speed are also changed according to the weight.) *7. When using high accuracy mode. *8. Regular air pressure varies depending on the machine specifications, machining program details, or use of peripheral equipment. Set the pressure higher than the recommend value. *9. The machine needs to be equipped with a relocation detection device depending on the destination. Machines equipped with a relocation detection device come with "RD" at the end of the model name. *10. Parameter setting must be changed. (Tool indexing time will change.) Max. tool weight 4.0 kg cannot be available for the 27,000 min⁻¹ specifications. *11. The value does not include the coolant tank. *12. Value for turret magazine plus tool stocker. *13. Value for turret magazine.

- For the 20,000 min⁻¹ coolant through spindle specifications, dry machining may not be possible depending on workpiece material. For further details, please contact your local distributor.
 - The type of coolant may have a significant influence on the machine's lifecycle. It is recommended to use high-lubricity (emulsion type) coolant. Do not use chemical solution type (synthetic type) coolant, as it may cause damage to the machine.
 - When using CTS (Coolant Through Spindle) function, do not use flammable coolant (ex. oil-based type).
 - Please read the instruction manuals and safety manuals before using Brother products for your own safety.
- When using oil-based coolant or when machining materials which can cause a fire (ex. magnesium, resin), customers are requested to take thorough safety measures against fire.
- The types of cutting material, cutting tools, coolant, or lubrication oil may have an influence on the machine's lifecycle.
- For further questions, please contact your local distributor.
- Leave 700 mm between machines as maintenance space.

Machine specifications (R series)

Item				R450Xd2 R450Xd2 RD *12		R650Xd2 R650Xd2 RD *12			
						14/22/28 tool magazine		40-tool magazine	
CNC Unit				CNC-D00		CNC-D00			
Travels	X axis	mm(inch)		450 (17.7)		650 (25.6)			
	Y axis	mm(inch)		320 (12.6) *7		400 (15.7)			
	Z axis	mm(inch)		305 (12.0)		305 (12.0)		435 (17.1)	
	Distance between table top and spindle nose end		mm(inch)	200~505 (7.9~19.9) [280~585 (11.0~23.0) *8]		250~555 (9.8~21.8) [350~655 (13.8~25.8) *8]		250~685 (9.8~27.0) [350~785 (13.8~30.9) *8]	
Table	Work area size	mm(inch)		One face 600 x 300 (23.6 x 11.8)		One face 800 x 400 (31.5 x 15.7)			
	Max.loading capacity (uniform load)	kg(lbs)		One face 120 (265) [200 (441) *6]		One face 200 (441) [300 (661) *6]			
	Position time	sec.		2.7 *11		3.1 *11		3.1 *11	
Spindle	Spindle speed	min ⁻¹		12,000 min ⁻¹ spec.: 1~12,000 10,000 min ⁻¹ high-torque spec. (optional): 1~10,000 20,000 min ⁻¹ spec. (optional): 1~20,000		12,000 min ⁻¹ spec.: 1~12,000 10,000 min ⁻¹ high-torque spec. (optional): 1~10,000 20,000 min ⁻¹ spec. (optional): 1~20,000			
	Speed during tapping	min ⁻¹		MAX. 6,000		MAX. 6,000			
	Tapered hole			7/24 tapered No.30		7/24 tapered No.30			
	BT dual contact spindle (BIG-PLUS)			Optional		Optional			
	Coolant Through Spindle (CTS)			Optional		Optional			
Feed rate	Rapid traverse rate (XYZ axes)	m/min(inch/min)		50 x 50 x 50 (1,969 x 1,969 x 1,969)		50 x 50 x 50 (1,969 x 1,969 x 1,969)			
	Cutting feed rate	mm/min(inch/min)		X, Y, Z axis: 1~30,000 (0.04~1,181) *9		X, Y, Z axis: 1~30,000 (0.04~1,181) *9			
ATC unit	Tool shank type			MAS-BT30		MAS-BT30			
	Pull stud type *4			MAS-P30T-2		MAS-P30T-2			
	Tool storage capacity		pcs.	14 / 22 / 28		14 / 22 / 28		40	
	Max. tool length *1		mm(inch)	200 (7.9)		200 (7.9)		250 (9.8)	
	Max. tool diameter *1		mm(inch)	80 (3.1)		80 (3.1)		55 (2.1) / 125 (4.9) No adjacent tool	
	Max. tool weight *1		kg(lbs)	3.0 (6.6) <total tool weight: 25 (55.1) for 14-tool, 40 (88.2) for 22 / 28 tool>		3.0 (6.6) <total tool weight: 25 (55.1) for 14-tool, 40 (88.2) for 22 / 28 tool>		4.0 (8.8) <total tool weight: 80 (176.3)>	
Tool selection method				Random short cut method		Random short cut method		Double arm method (random closet path)	
Tool change time *5	Tool To Tool	sec.		0.6 / 0.7 (14-tool / 22 or 28 tool)		0.6 / 0.8 (14-tool / 22 or 28 tool)		0.9	
	Chip To Chip	sec.		1.3 / 1.5 (14-tool / 22 or 28 tool)		1.4 / 1.5 (14-tool / 22 or 28 tool)		2.5	
Electric motor	Main spindle motor (10 min/continuous) *2	kW		12,000 min ⁻¹ spec.: 10.1 / 7.0 10,000 min ⁻¹ high-torque spec. (optional): 12.8 / 9.2 20,000 min ⁻¹ spec. (optional): 7.4 / 5.1		12,000 min ⁻¹ spec.: 10.1 / 7.0 10,000 min ⁻¹ high-torque spec. (optional): 12.8 / 9.2 20,000 min ⁻¹ spec. (optional): 7.4 / 5.1			
	Axis feed motor	kW		X, Y axis: 1.0 Z axis: 1.8		X, Y axis: 1.0 Z axis: 1.8			
Power source	Power supply			200 to 230 VAC ±10%, 3-phase, 50/60 Hz±2%		200 to 230 VAC ±10%, 3-phase, 50/60 Hz±2%			
	Power capacity (continuous)		kVA	10.4		10.4			
	Air supply	Regular air pressure	MPa	0.4~0.6 (recommended value: 0.5 MPa *10)		0.4~0.6 (recommended value: 0.5 MPa *10)			
		Required flow	L/min	40		40		65	
Machine dimensions	Height	mm(inch)		2,584 (101.7)		2,704 (106.5)			
	Required floor space *13 (with control unit door open)	mm(inch)		1,400 x 2,609 [3,448] (55.1 x 102.7 [135.7])		1,830 x 3,029 [3,868] (72.0 x 119.3 [152.3])		2,145 x 3,029 [3,868] (84.4 x 119.3 [152.3])	
	Weight	kg(lbs)		2,750 (6,063)		3,550 (7,826)		4,150 (9,149)	
Accuracy *3	Accuracy of bidirectional axis positioning (ISO230-2: 1988)		mm(inch)	0.006~0.020 (0.00024~0.00079)		0.006~0.020 (0.00024~0.00079)			
	Repeatability of bidirectional axis positioning (ISO230-2: 2014)		mm(inch)	Less than 0.004 (0.00016)		Less than 0.004 (0.00016)			
Front door				2 doors		2 doors			
Standard accessories				Instruction Manual (DVD 1 set), leveling bolts (4 pcs.) [R650Xd2: 5 pcs.], leveling plates (4 pcs.) [R650Xd2: 5 pcs.]					

*1. The maximum tool length, maximum diameter, and maximum weight are limited depending on the spindle speed in use, configuration, center of gravity, etc. The figures shown here are for reference only. Please contact your local distributor for details. *2. Spindle motor output differs depending on the spindle speed. *3. Measured in compliance with ISO standards and Brother standards. Please contact your local distributor for details. *4. Brother specifications apply to the pull studs for CTS. *5. Measured in compliance with JIS B6336-9 and MAS011-1987. *6. Can be increased up to R450X2: 200 kg, R650Xd2: 300 kg (one face) by changing the parameter. Please consult us separately. *7. When using the hydraulic rotary joint, the Y-axis travel becomes 290 mm. *8. Values when the low-floor table is selected. *9. When using high accuracy mode B. *10. Regular air pressure varies depending on the machine specifications, machining program details, or use of peripheral equipment. Set the pressure higher than the recommend value. *11. When table loading on one face is R450Xd2: 120 kg, R650Xd2: 200 kg. *12. The machine needs to be equipped with a relocation detection device depending on the destination. Machines equipped with a relocation detection device come with "RD" at the end of the model name. *13. The value does not include the coolant tank or chip conveyor.

- When exporting our machine together with additional 1-axis rotary table or compound rotary table (including cases where a rotary table is scheduled to be installed overseas), or exporting the M200/M300X, U500Xd2, S300/S500/S700Xd2-5AX, W1000Xd2-5AX, H550Xd1, or HU550Xd1, the machine is deemed to be included in the “applicable listed items” controlled by the Foreign Exchange and Foreign Trade Act of Japan. When exporting the machine, please obtain required permissions, including an export license, from the Ministry of Economy, Trade and Industry (METI) or Regional Bureaus of Economy, Trade and Industry before shipment. When re-selling or re-exporting the machine, you may need to obtain permissions from METI, and the government of the country where the machine is installed.
- When exporting our machine together with compound rotary table (including cases where a rotary table is scheduled to be installed overseas), exporting the M200/M300Xd1, U500Xd2, S300/S500/S700Xd2-5AX, W1000Xd2-5AX, or HU550Xd1, or exporting the H550Xd1 together with additional 1-axis rotary table (including cases where a rotary table is scheduled to be installed overseas), as a machine conforming to Row 1 of Appendix Table 1 of Export Trade Control Order, a relocation detection device is installed on the machine depending on the destination country. After relocating the machine with the detection device, the machine is locked and any operation is temporarily impossible. Please inform your local distributor of machine relocation in advance and apply to perform the release operation of relocated machine.
- In order to operate our machine with an additional axis rotary table installed separately overseas after exporting the machine, a procedure to activate the axis of the rotary table is needed. Please inform your local distributor of these processes in advance, because the predetermined procedure is required to perform the activation. In addition, for export to some countries and regions other than “Group A countries”, it is not possible to install a compound rotary table on the machine or an additional 1-axis rotary table on the H550Xd1 separately overseas after exporting the machine. Please make sure you obtain an export license for the machine together with compound rotary table, or additional 1-axis rotary table for the H550Xd1, before shipment.

Machine specifications (M series/U series)

Item			M200Xd1 M200Xd1 RD *8 M200Xd1-5AX M200Xd1-5AX RD *8	M300Xd1 M300Xd1 RD *8 M300Xd1-5AX M300Xd1-5AX RD *8	U500Xd2 U500Xd2 RD *8 U500Xd2-5AX U500Xd2-5AX RD *8	U500Xd2-100T U500Xd2-100T RD *8 U500Xd2-5AX/100T U500Xd2-5AX/100T RD *8
CNC Unit			《M200Xd1/M300Xd1》CNC-D00 《M200Xd1-5AX/M300Xd1-5AX》CNC-D00v (DB)		《U500Xd2》CNC-D00 《U500Xd2-5AX》CNC-D00v (DB)	
Travels	X axis	mm(inch)	200 (7.9)	300 (11.8)	500 (19.7)	
	Y axis	mm(inch)	440 (17.3)	440 (17.3)	450 (17.7)	
	Z axis	mm(inch)	305 (12.0)	380 (15.0)	380 (15.0)	
	A axis	deg.	-30~120	-30~120	-30~120	
	C axis	deg.	360	360	360	
	Distance between table top and spindle nose end	mm(inch)	150~455 (5.9~17.9)	150~530 (5.9~20.9)	115~495 (4.5~19.5)	
Table	Work area size	mm(inch)	ø140 (ø5.5)	ø170 (ø6.7)	ø260 (ø10.2)	
	Shape of table top		In compliance with table nose No.5 of ISO702-4 (JISB6109-2)	In compliance with table nose No.6 of ISO702-4 (JISB6109-2)	—	
	Max.loading capacity (uniform load)	kg(lbs)	Table side 40 (88.2) Tale side 19 (41.9) *9	Table side 75 (165.3) Tale side 19 (41.9) *9	100 (220)	
	Max. table load inertia	kg·m ² (lb·inch ²)	Table side 0.29 (991) Tale side 0.04 (137)	Table side 0.8 (2,734) Tale side 0.04 (137)	1.8 (6,151) [2.6 (8,885) *13]	
Spindle	Spindle speed	min ⁻¹	10,000 min ⁻¹ spec.: 1~10,000 16,000 min ⁻¹ spec. (Optional): 1~16,000		12,000 min ⁻¹ spec.: 1~12,000 10,000 min ⁻¹ high-torque spec. (optional): 1~10,000 20,000 min ⁻¹ spec. (optional): 1~20,000	
	Speed during tapping	min ⁻¹	MAX. 6,000		MAX. 6,000	
	Tapered hole		7/24 tapered No.30		7/24 tapered No.30	
	BT dual contact spindle (BIG-PLUS)		Optional		Optional	
	Coolant Through Spindle (CTS)		Optional		Optional	
Turning spindle	Max. Spindle speed	min ⁻¹	2,000	1,500	—	
Feed rate	Rapid traverse rate (XYZ axes)	m/min(inch/min)	50 x 50 x 50 (1,969 x 1,969 x 1,969)		50 x 50 x 56 (1,969 x 1,969 x 2,205)	
	Cutting feed rate	mm/min(inch/min)	X, Y, Z axis: 1~30,000 (0.04~1,181) *7		X, Y, Z axis: 1~30,000 (0.04~1,181) *7	
	Indexing feed rate (A and C)	mm min ⁻¹	A axis: 60 C axis: 200	A axis: 50 C axis: 200	A axis: 50 C axis: 75 (60 *13)	
ATC unit	Tool shank type		MAS-BT30		MAS-BT30	
	Pull stud type *4		MAS-P30T-2		MAS-P30T-2	
	Tool storage capacity	pcs.	22 / 28 *10		14 / 21 / 28	100 *15
	Max. tool length *1	mm(inch)	250 (9.8) *12		250 (9.8)	
	Max. tool diameter *1	mm(inch)	80 (3.1)		110 (4.3)	Turret magazine: 110 (4.3), Tool stocker: 60 (2.3) / 110 (4.3) (No adjacent tool)
	Max. tool weight *1	kg(lbs)	3 (6.6) <total tool weight: 40 (88.2)>		3.0 (6.6) [4.0 (8.8) *14] / tool, <TOTAL TOOL WEIGHT: 25 (55.1) for 14 tools, 35 (77.2) for 21or 28 tools>	Turret magazine: 3.0 (6.6) [4.0 (8.8) *14] / tool, <Total tool weight: 35 (77.2)> Tool stocker: 4.0 (8.8) / tool, <Total tool weight: 50 (110.2)>
	Tool selection method		Random shortcut method		Random shortcut method	
Tool change time *5	Tool To Tool	sec.	0.8	0.8	0.6 / 0.7 (14 or 21 tools / 28 tools)	
	Chip To Chip	sec.	1.4	1.5	1.3 / 1.4 (14 or 21 tools / 28 tools)	
Electric motor	Main spindle motor (10 min/continuous) *2	kW	10,000 min ⁻¹ spec.: 10.1 / 7.0 16,000 min ⁻¹ spec. (optional): 7.4 / 5.1		12,000 min ⁻¹ spec.: 10.1 / 7.0 10,000 min ⁻¹ high-torque spec. (optional): 12.8 / 9.2 20,000 min ⁻¹ spec. (optional): 7.4 / 5.1	
	Axis feed motor	kW	X,Y axis: 1.0 Z axis: 1.8 A axis: 0.8	X,Y axis: 1.0 Z axis: 1.8 A axis: 1.35	X, Y axis: 1.0 Z axis: 2.0 A axis: 0.9 C axis: 0.55	
	Turning spindle motor	kW	4.2		4.6	
Power source	Power supply		200 to 230 VAC ±10%, 3-phase, 50/60 Hz±2%		200 to 230 VAC ±10%, 3-phase, 50/60 Hz±2%	
	Power capacity (continuous)	kVA	9.5		10.4	
	Air supply	Regular air pressure MPa	0.4~0.6 (recommended value 0.5 MPa *6)		0.4~0.6 (recommended value 0.5 MPa *6)	
		Required flow L/min	175		52	
Machine dimensions	Height	mm(inch)	2,612 (102.9)	2,733 (107.6)	2,818 (110.9)	
	Required floor space *11 [with control unit door open]	mm(inch)	1,280 x 2,667 (50.4 x 105)	1,520 x 2,667 (59.8 x 105)	1,560 x 2,081 [2,919] (61.4 x 81.9 [114.9])	2,050 x 2,081[2,919] (80.7 x 81.9 [114.9])
	Weight [with BV7-870Ad]	kg(lbs)	2,700 (5,953) [3,000 (6,614)]	2,850 (6,283)	2,650 (5,843)	2,800 (6,173)
Accuracy *3	Accuracy of bidirectional axis positioning (ISO230-2: 1988) (ISO230-2: 2014)		X, Y, Z axis: 0.006~0.020 mm (0.00024~0.00079 inch) A, C axis: 28 sec or less		X, Y, Z axis: 0.006~0.020 mm (0.00024~0.00079 inch) A, C axis: 28 sec or less	
	Repeatability of bidirectional axis positioning (ISO230-2: 2014)		X, Y, Z axis: Less than 0.004 mm (0.00016 inch) A, C axis: 16 sec or less		X, Y, Z axis: Less than 0.004 mm (0.00016 inch) A, C axis: 16 sec or less	
Front door			2 doors		2 doors	
Standard accessories			Instruction Manual (DVD 1 set), leveling bolts (5 pcs.), leveling plates (5 pcs.)		Instruction Manual (DVD 1 set), leveling bolts (4 pcs.), leveling plates (4 pcs.)	

*1. The maximum tool length, maximum diameter, and maximum weight are limited depending on the spindle speed in use, configuration, center of gravity, etc. The figures shown here are for reference only. Please contact your local distributor for details. *2. Spindle motor output differs depending on the spindle speed. *3. Measured in compliance with ISO standards and Brother standards. *4. Brother specifications apply to the pull studs for CTS. *5. Measured in compliance with JIS B6336-9 and MAS011-1987. *6. Regular air pressure varies depending on the machine specifications, machining program details, or use of peripheral equipment. Set the pressure higher than the recommended value. *7. When using high accuracy mode B. *8. The machine needs to be equipped with a relocation detection device depending on the destination. Machines equipped with a relocation detection device come with “RD” at the end of the model name. *9. The loading capacity on the tail side is 13 kg at the rotating section and 6 kg at the fixed section. *10. For the 28-tool magazine, turning tools cannot be set in adjust pods. *11. The value does not include the coolant tank or chip conveyor. *12. Tools with a length of 200 mm or more may contact the jig when the magazine turns, depending on the jig height. *13. When using high inertia mode. Parameter setting needs to be changed. *14. Parameter setting must be changed. (Tool indexing time will change.) *15. Value for turret magazine plus tool stocker *16. Value for turret magazine

Machine specifications (W series/H series/HU seires)

Item			W1000Xd2 W1000Xd2 RD *8 W1000Xd2-5AX W1000Xd2-5AX RD *8	H550Xd1 H550Xd1 RD *8	HU550Xd1 HU550Xd1 RD *8 HU550Xd1-5AX HU550Xd1-5AX RD *8
CNC Unit			《W1000Xd2》CNC-D00 《W1000Xd2-5AX》CNC-D00v (DB)	CNC-D00	《HU550Xd1》CNC-D00 《HU550Xd1-5AX》CNC-D00v (DB)
Travels	X axis	mm(inch)	1,000 (39.4)	550 (21.7)	550 (21.7)
	Y axis	mm(inch)	500 (19.7)	400 (15.7)	500 (19.7)
	Z axis	mm(inch)	380 (15.0)	400 (15.7)	400 (15.7)
	A axis	deg.	—	—	30~~120
	B axis	deg.	—	360	360
	Distance between table top and spindle nose end	mm(inch)	150~530 (5.9~20.9)	—	—
Table	Distance between table top and spindle center	mm(inch)	—	100~500 (3.9~19.7)	-100~400 (-3.9~15.7) (A axis 0 deg)
	Distance between table center and spindle nose end	mm(inch)	—	150~550 (5.9~21.7)	150~550 (5.9~21.7) (A axis 0 deg)
	Work area size	mm(inch)	1,100 x 500 (43.3 x 19.7)	400 (15.7) x 400 (15.7)	ø400 (15.7)
	Max. loading capacity (uniform load)	kg(lbs)	300 [500 *14] (661 [1,102 *14])	400 (882) *13	200 (441)
Spindle	Max. table load inertia	kg·m ² (lb·inch ²)	—	3.4 (11,618) [5.4 (18,453) *9]	4.1 (14,010) [8.8 (30,071) *9]
	Spindle speed	min ⁻¹	12,000 min ⁻¹ spec.: 1~12,000 10,000 min ⁻¹ high-torque spec. (optional): 1~10,000 20,000 min ⁻¹ spec. (optional): 1~20,000	12,000 min ⁻¹ spec.: 1~12,000 10,000 min ⁻¹ high-torque spec. (optional): 1~10,000 20,000 min ⁻¹ spec. (optional): 1~20,000	12,000 min ⁻¹ spec.: 1~12,000 10,000 min ⁻¹ high-torque spec. (optional): 1~10,000 20,000 min ⁻¹ spec. (optional): 1~20,000
	Speed during tapping	min ⁻¹	MAX. 6,000	MAX. 6,000	MAX. 6,000
	Tapered hole		7/24 tapered No.30	7/24 tapered No.30	7/24 tapered No.30
	BT dual contact spindle (BIG-PLUS)		Optional	Optional	Optional
	Coolant through spindle (CTS)		Optional	Optional	Optional
Feed rate	Rapid traverse rate (XYZ axes)	m/min(inch/min)	50 x 50 x 56 (1,969 x 1,969 x 2,205)	50 x 56 x 56 (1,969 x 2,205 x 2,205)	50 x 56 x 56 (1,969 x 2,205 x 2,205)
	Cutting feed rate	mm/min(inch/min)	X, Y, Z: 1~30,000 (0.04~1,181) *6	X, Y, Z axis: 1~30,000 (0.04~1,181) *6	X, Y, Z axis: 1~30,000 (0.04~1,181) *6
	Indexing feed rate (A)	min ⁻¹	—	—	50
	Indexing feed rate (B)	min ⁻¹	—	100 (85 *9)	75 (60 *9)
ATC unit	Tool shank type		MAS-BT30	MAS-BT30	MAS-BT30
	Pull stud type *4		MAS-P30T-2	MAS-P30T-2	MAS-P30T-2
	Tool storage capacity	pcs.	14 / 21 / 28	30	30
	Max. tool length *1	mm(inch)	250 (9.8)	250 (9.8)	350 (13.7)
	Max. tool diameter *1	mm(inch)	110 (4.3)	125 (4.9) *12	125 (4.9) *12
	Max. tool weight *1	kg(lbs)	3.0 (6.6) [4.0 (8.8) *10] / tool, <TOTAL TOOL WEIGHT: 25 (551) for 14 tools, 35 (77.2) for 21 or 28 tools>	4.0 (8.8) / tool, <TOTAL TOOL WEIGHT: 50 (110.2)>	4.0 (8.8) / tool, <TOTAL TOOL WEIGHT: 50 (110.2)>
	Tool selection method		Random shortcut method	Random shortcut method	Random shortcut method
	Tool change time *5	Tool To Tool sec. Chip To Chip sec.	0.6 / 0.7 (14 or 21 tools / 28 tools) 1.3 / 1.4 (14 or 21 tools / 28 tools)	1.3 *15 2.7 *15	1.3 2.5
Electric motor	Main spindle motor (10 min/continuous) *2	kW	12,000 min ⁻¹ spec.: 10.1 / 7.0 10,000 min ⁻¹ high-torque spec. (optional): 12.8 / 9.2 20,000 min ⁻¹ spec. (optional): 7.4 / 5.1	12,000 min ⁻¹ spec.: 10.1 / 7.0 10,000 min ⁻¹ high-torque spec. (optional): 12.8 / 9.2 20,000 min ⁻¹ spec. (optional): 7.4 / 5.1	12,000 min ⁻¹ spec.: 10.1 / 7.0 10,000 min ⁻¹ high-torque spec. (optional): 12.8 / 9.2 20,000 min ⁻¹ spec. (optional): 7.4 / 5.1
	Axis feed motor	kW	X, Y axis: 1.0 Z axis: 2.0	X, Z axis: 1.0 Y axis: 1.8 B axis: 1.8	X,Z axis: 1.0 Y axis: 1.8 A axis: 1.35+1.35 B axis: 0.9
Power source	Power supply		200 to 230 VAC ±10%, 3 phase, 50/60 Hz±2%	200 to 230 VAC ±10%, 3 phase, 50/60 Hz±2%	200 to 230 VAC ±10%, 3 phase, 50/60 Hz±2%
	Power capacity (continuous)	kVA	10.4	10.4	12,000 min ⁻¹ spec.: 9.5 10,000 min ⁻¹ high-torque spec. (optional): 10.4 20,000 min ⁻¹ spec. (optional): 9.5
	Air supply	Regular air pressure MPa Required flow L/min	0.4~0.6 (recommended value 0.5 MPa *7) 45	0.4~0.6 (recommended value 0.5 MPa *7) 45	0.4~0.6 (recommended value 0.5 MPa *7) 45
	Machine dimensions	Height mm(inch) Required floor space *11 [with control unit door open] mm(inch) Weight kg(lbs)	2,633 (103.7) 2,410 x 2,233 [3,071] (94.9 x 87.9 [120.9]) 3,350 (7,385)	2,497 (98.3) 1,557 x 2,743 [3,581] (61.3 x 108.0 [141.0]) 2,850 (6,284)	2,682 (105.6) 1,557 x 2,744 [3,582] (61.3 x 108.0 [141.0]) 3,150 (6,945)
Accuracy *3	Accuracy of bidirectional axis positioning (ISO230-2: 1988) (ISO230-2: 2014)		X, Y, Z axis: 0.006~0.020 mm (0.00024~0.00079 inch) B axis: 28 sec or less	X, Y, Z axis: 0.006~0.020 mm (0.00024~0.00079 inch) B axis: 28 sec or less	X, Y, Z axis: 0.006~0.020 mm (0.00024~0.00079 inch) A, B axis: 28 sec or less
	Repeatability of bidirectional axis positioning (ISO230-2: 2014)		X, Y, Z axis: Less than 0.004 mm (0.00016 inch) B axis: 16 sec or less	X, Y, Z axis: Less than 0.004 mm (0.00016 inch) B axis: 16 sec or less	X, Y, Z axis: Less than 0.004 mm (0.00016 inch) A, B axis: 16 sec or less
Front door			2 doors		2 doors
Standard accessories			Instruction Manual (DVD 1 set), leveling bolts (4 pcs.), leveling plates (4 pcs.)		

*1. The maximum tool length, maximum diameter, and maximum weight are limited depending on the spindle speed in use, configuration, center of gravity, etc. The figures shown here are for reference only. Please contact your local distributor for details. *2. Spindle motor output differs depending on the spindle speed. *3. Measured in compliance with ISO standards and Brother standards. *4. Brother specifications apply to the pull studs or CTS. *5. Measured in compliance with JIS B6336-9 and MAS011-1987. *6. When using high accuracy mode B. *7. Regular air pressure varies depending on the machine specifications, machining program details, or use of peripheral equipment. Set the pressure higher than the recommended value. *8. The machine needs to be equipped with a relocation detection device depending on the destination. Machines equipped with a relocation detection device come with “RD” at the end of the model name. *9. When using high inertia mode. Parameter setting needs to be changed. *10. Parameter setting needs to be changed. (Tool indexing time is changed.) *11. The value does not include the coolant tank or chip conveyor. *12. When attaching an adjacent tool, the total diameter of a tool and its adjacent tool must be less than 130 mm. *13. When designing a jig, please pay attention to the maximum table load inertia. *14. Parameter adjustment is required. (Acceleration adjustment and positioning speed are also changed according to the weight.) *15. Adjusting the parameters enables higher speed operation.

NC unit specifications

Model	S300/S500/S700Xd2, W1000Xd2, R450/R650Xd2, M200/M300Xd1, U500Xd2, H550Xd1, HU550Xd1
CNC model	CNC-D00
Control axes	5 axes (X, Y, Z, 2 additional axes) R450/R650Xd2: 7 axes (X, Y, Z, 4 additional axes)
Simultaneously controlled axes (Positioning)	5 axes (X, Y, Z, 2 additional axes)
Simultaneously controlled axes (Interpolation)	Linear: 4 axes (X, Y, Z, 1 additional axis) Circular: 2 axes Helical/Conical: 3 axes (X, Y, Z)
Least input increment	0.001 mm, 0.0001 inch, 0.001 deg. 0.0001 mm, 0.00001 inch, 0.0001 deg (optional)
Max. programmable dimension	±999999.999 mm, ±99999.9999 inch ±999999.9999 mm, ±99999.99999 inch (optional)
Display	15-inch color LCD touch display
Memory capacity	500 Mbytes, 3 Gbytes (optional) (Total capacity of program and data bank)
External communication	USB memory interface, Ethernet, RS232C (optional)
No. of registrable programs	4,000 (Total capacity of program and data bank)
Program format	NC language, conversation language (changed by parameter) Conversion from conversation language program to NC language program available M200/M300Xd1, H550Xd1, HU550Xd1, S700Xd2-100T, U500Xd2-100T: NC language * Conversation language not available

NC functions

Operation	Dry run Machine lock Program restart Rapid traverse override Cutting feed override Background editing Screen shot Operation level External input signal key Shortcut keys <Optional> Spindle override	Monitoring	Machining load monitoring ATC tool monitoring Overload prediction Waveform display / Waveform output to memory card Automatic thermal distortion compensation (X, Y, and Z axes) Production performance display Tool life / Spare tool Stuck chips detection function *7	Standby mode Automatic coolant off Automatic work light off Chip shower off delay Chip shower energy savings operation Energy savings mode	External sub program call Macro Tape operation / FTP load operation Multiple skip function <Optional> Submicron command *2 *5 Interrupt type macro Rotary fixture offset Feature coordinates setting *3 *5 Involute interpolation Spindle/turning spindle synchronized control *8 Vibration adjustment
Programming	Absolute / Incremental Inch / Metric Coordinate system setting Corner C / Corner R Rotational transformation Synchronized tap Subprogram Graphic display	Maintenance	Tap return function Status log Alarm log Operation log Maintenance notice Motor insulation resistance measurement Tool washing filter with filter clogging detection Battery-free encoder Brake load test	Support apps	Adjust machine parameters ATC tool Tool life Waveform display Production performance Power consumption Recovery support Inspection PLC Machining support without warmup Software control panel
Measurement	Automatic workpiece measurement *1 Tool length measurement	Automatic / Network	Computer remote OPC UA Auto notification Built-in PLC (LD/ST/FBD) <Optional> CC-Link, master station CC-Link, remote device station PROFIBUS-DP, slave DeviceNet, slave PROFINET, slave EtherNet/IP, slave Automatic power off	Accessories	File viewer Notebook Calculator Register shortcut Display off
High speed and high accuracy	Machining parameter adjustment High-accuracy mode All High-accuracy mode B1 (Look-ahead 160 blocks) Backlash compensation Tool center point control *3 *4 (Look-ahead 1,000 blocks) <Optional> High accuracy mode B11 (Look-ahead 1,000 blocks, smooth path offset)	Energy saving		Functions limited to NC language	Menu programming Local coordinate system Expanded workpiece coordinate system One-way positioning Inverse time feed Programmable data input Tool length compensation Cutter compensation Scaling Mirror image

*1. For the measuring instrument, please select an optional touch probe or provide one yourself. *2. When the submicron command is used, changing to the conversation language program is disabled. *3. There are restrictions on the axis configuration. *4. Available only on simultaneous 5-axis control (-5AX) models. *5. Standard on simultaneous 5-axis control (-5AX) models. *6. Conversation language not available on the M200/M300Xd1, H550Xd1, HU550Xd1 and simultaneous 5-axis control (-5AX) models. *7. Not available on the M200Xd1. *8. Available only on the M200/M300Xd1.

Special Options

Rotary Table



T-200Ad

Type	Right-handed, Left-handed *1
Center height	170 mm
Gear ratio	1/20
Maximum speed	100 (50 *2) min ⁻¹
Maximum loading capacity	100 (200 *3) kg
Product weight	61 kg
Applicable models	S300Xd2/S500Xd2/ S700Xd2/W1000Xd2/ R450Xd2/R650Xd2

*1. Only right-handed type available for the R450Xd2 and R650Xd2 *2. When high inertia mode is used *3. When a support table is used

Loading System



BV7-870Ad

No. of axes	4 (3 rotary axes, 1 travel axis)
Loading position	Right side / Left side
Arm length	Total 870 mm
Rated payload	7 kg
Applicable models	S300Xd2/S500Xd2/ M200Xd1

* Depending on the model and specifications, some options may be standard equipment or may not be available. For details, refer to the model catalog.

Coolant tank

	S300Xd2 S500Xd2 S700Xd2	R450Xd2	R650Xd2	M200Xd1 M300Xd1	W1000Xd2	U500Xd2	H550Xd1	HU550Xd1
Coolant tank 50 L	●					●		
Coolant tank 100 L	●					●		
Coolant tank 150 L	●	● with chute		● with chute		●		
Coolant tank 200 L	●	● with chute	● with chute		●	●	● with chute	
Coolant tank 250 L			● with chute					● with chute
Chip conveyor tank (360~500 L)	●				●	●		
Scraper type	●							
Hinge+scraper type	●	●	●	●	●	●	●	●

* Coolant tanks other than 50 L and 100 L can be selected for Coolant Through Spindle CTS 1.5 MPa with cyclone filter. However, some coolant tanks are only available for CTS 1.5 MPa with cyclone filter

* Capacity of the chip conveyor tank differs depending on the model, so please refer to the model catalog for details

Common options

- BT dual contact spindle
 - Coolant Through Spindle (CTS) 3.0 MPa *1
 - Coolant Through Spindle (CTS) 7.0 MPa *1
 - Head coolant nozzle
 - Tool cleaning system
 - Chip shower
 - Fixture shower valve unit
 - Cleaning gun
 - Mesh basket for collecting chips
 - Automatic oil lubricator
 - Automatic grease lubricator
 - Work light, 1 or 2 lamps
 - Signal light, 1, 2, or 3 lamps
 - Automatic door with switch panel 10 holes
- Area sensor
 - Side cover with transparent window
 - Specified color
 - Tool breakage detector, touch type
 - Manual pulse generator with enable switch
 - Spindle override
 - Switch panel 8 or 10 holes
 - Power supply expansion 50 A
 - RS232C 25-pin connector at control box
 - Master on circuit
 - 100V outlet in control box
 - Data protection switch, key type
 - Parts name sticker set
 - Origin alignment mark
- Transformer box
 - Memory expansion 3 GB
 - PLC programming software for D00
 - EXIO board assembly
 - ① EXIO board, input32 / output32, additional #1
 - ② EXIO board, input32 / output32, additional #2
 - Industrial network
 - ① CC-Link, master station
 - ② CC-Link, remote device station
 - ③ PROFIBUS DP, slave
 - ④ DeviceNet, slave
 - ⑤ PROFINET, slave
 - ⑥ EtherNet/IP, slave
- High accuracy mode B11 (Look-ahead 1,000 blocks, smooth path offset)
 - Submicron command
 - Interrupt type macro
 - Rotary fixture offset
 - Feature coordinates setting
 - Involute interpolation
 - Vibration adjustment

*1. the coolant tank is not included.

Model-specific options

	S300Xd2 S500Xd2 S700Xd2	R450Xd2	R650Xd2	M200Xd1 M300Xd1	W1000Xd2	U500Xd2	H550Xd1	HU550Xd1
Rotary table T-200Ad	●	●	●		●			
Column coolant nozzle	●	●	●		●			
High column, 150 mm, 250 mm, or 350 mm *2	●				●			
Side shutter	●					●		
Additional axis cable	●	●	●		●			
Top cover	●	●	●		●	●		
Grip cover for tool magazine	●	●	●	●	●	●		
Breaker handle cover	●					●		
Side door with transparent window		●		●		●		
Folding door (two-door)	●	●	●		●	●	●	●
Pneumatic relay box 12P		●	●					
Hydraulic rotary joint 4P		●	●					
Rotary joint				● 4P		● 6P	● 9+1P	● 6+1P
Hydraulic rotary cylinder				●				
A-axis clamp (Single-Double)				●				
Table light		●	●					
Outside rotary table switch for 1 or 2 axes		●	●					
Rotary table switch							● for B-axis	● for A/B-axis
Turning diameter enlargement, ø1, 100 mm (R450Xd2) / ø1,300 mm (R650Xd2)		●	●					
Low-floor table		●	●					
Side magazine switch		●						
Front switch panel 10 holes			●				●	●
Outside start switch on the side			●					
Spindle/turning spindle synchronized control				●				
Mist collector	●	●	●		●	●	●	
Touch probe with basic measurement software	●	●	●		●	●	●	
Touch probe with rotary center measurement software for additional axes	●	●	●		●	●	●	
Datum sphere for measurement	●	●	●		●	●	●	

*2. 350 mm high column is only available for W1000Xd2.

DG-1

Mechanizes manual deburring of die casting material in variable-type variable-volume production

Deburring Center



Mechanization of manual deburring of die casting material

Deburring of die casting material in variable-type variable-volume production is currently performed manually. Deburring setup functions achieved by Brother's original technology enable efficient mechanization of manual deburring.

Die casting parts manufacturing processes



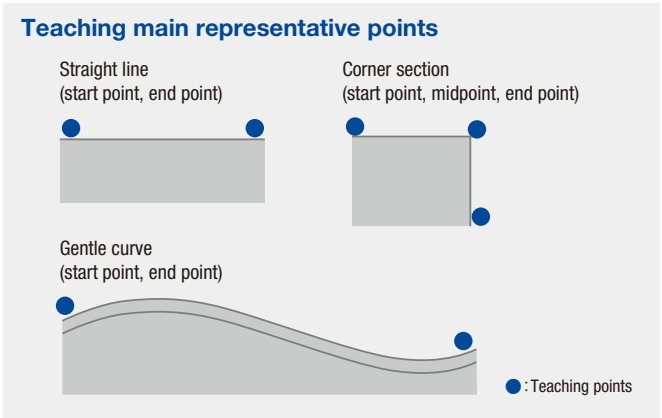
Equipped with pickup type ATC

The pickup type ATC can store six tools, and various types of deburring tools can be used. The open/close magazine cover minimizes the impact of chips.

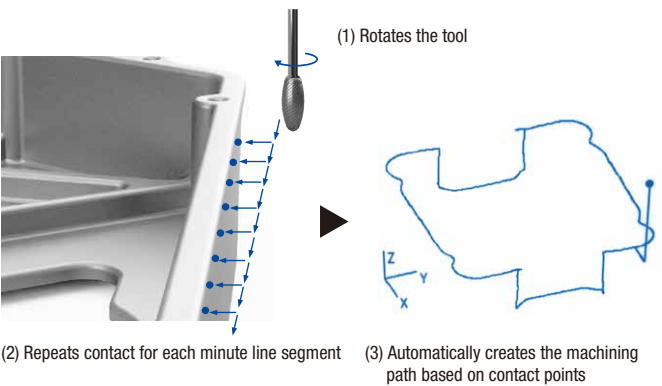


Brother's original deburring setup functions

Brother's original deburring setup functions, including teaching representative points, automatic machining path creation based on these points, path correction by intuitive operation and automatic machining program conversion, achieve fast deburring setup.



Machining path creation image



Machine specifications

Item			Deburring Center DG-1
CNC Unit			CNC-D00
Travels	X axis	mm(inch)	500 (19.7)
	Y axis	mm(inch)	300 (11.8)
	Z axis	mm(inch)	275 (10.8)
	A axis	deg.	360
	Distance between A-axis rotation center and spindle nose end		80~355 (3.1~14.0)
Table	Max. loading capacity	kg(lbs)	50 (110)
	Max. table load inertia	kg·m ² (lb·inch ²)	0.7 (2,392)
Spindle	Spindle speed	min ⁻¹	1~20,000
	Tapered hole		7/24 tapered No.15
Feed rate	Rapid traverse rate (XYZ axes)	m/min(inch/min)	40 x 40 x 40 (1,575 x 1,575 x 1,575)
	Cutting feed rate	mm/min(inch/min)	X, Y, Z axis: 1~30,000 (0.04~1,181) *6
	Indexing feedrate (A)	min ⁻¹	100
ATC unit	Tool shank type		JBS4002-15T
	Pull stud type *3		JBS4002-15P (45°)
	Tool storage capacity	pcs.	6
	Max. tool length	mm(inch)	150 (5.9)
	Max. tool diameter	mm(inch)	32 (1.2)
	Max. tool weight *1	kg(lbs)	0.4 (0.9)
Tool change time *4	Tool To Tool	sec.	3.0
	Chip To Chip	sec.	4.3
Electric motor	Main spindle motor (continuous) *2	kW	2.1
	Axis feed motor	kW	X, Y, Z axis: 0.32 A axis: 0.9
Power source	Power supply		200 to 230 VAC ±10%, 3-phase, 50/60 Hz±2%
	Power capacity (continuous)	kVA	3.8
	Regular air pressure	MPa	0.4~0.6 (recommended value 0.5 MPa *5)
	Required flow	L/min	20
Machine dimensions	Height	mm(inch)	2,033 (80.0)
	Required floor space [with control unit door open]	mm(inch)	998 x 1,656 [2,494] (39.3 x 65.2 [98.2])
	Weight	kg(lbs)	1,200 (2,646)
Standard accessories			Instruction Manual (DVD 1 set), leveling bolts (4 pcs.), leveling plates (4 pcs.), Chip tray, Top cover

*1. Actual tool weight differs depending on the configuration and center of gravity. The figures shown here are for reference only. *2. Spindle motor output differs depending on the spindle speed. *3. Brother specifications apply to the pull studs. *4. Measured in compliance with JIS B6336-9 and MAS011-1987. *5. Regular air pressure varies depending on the machine specifications, machining program details, or use of peripheral equipment. Set the pressure higher than the recommend value. *6. Value when using high accuracy mode B and tool center point control.

NC unit specifications

CNC model	CNC-D00		Display	15-inch color LCD touch display
Control axes	4 axes (X, Y, Z, A)		Memory capacity	500 Mbytes, 3 Gbytes (optional) (Total capacity of program and data bank)
Simultaneously controlled axes	Positioning	4 axes (X, Y, Z, A)	External communication	USB memory interface, Ethernet
	Interpolation	Linear: 4 axes (X, Y, Z, A)	No. of registrable programs	4,000 (Total capacity of program and data bank)
		Circular: 2 axes		
		Helical/Conical: 3 axes (X, Y, Z)	Program format	NC language
Least input increment	0.0001 mm, 0.00001 inch, 0.0001 deg.		* "Control axes" and "Simultaneously controlled axes" indicate the maximum number of axes.	
Max. programmable dimension	±999999.9999 mm, ±99999.99999 inch		* Ethernet is a registered trademark of Xerox Corporation in the United States.	

* "Control axes" and "Simultaneously controlled axes" indicate the maximum number of axes.
* Ethernet is a registered trademark of Xerox Corporation in the United States.

Option

- Teaching controller
- Jig base
- Rotary joint 6 ports
- Jig control valve unit (3-row)
- Side cover with transparent window
- Work light (1 or 2 lamps)
- Signal light (1, 2, or 3 lamps)
- Automatic door with switch panel (10 holes)
- Switch panel (10 holes)
- Tool breakage detector, touch type
- Spindle override
- Specified color
- Transformer box
- Memory expansion 3 Gbytes
- Interrupt type macro
- Rotary fixture offset
- EXIO board assembly
 - 1) EXIO board, input 32/output 32, additional #1
 - 2) EXIO board, input 32/output 32, additional #2
- Industrial network
 - 1) CC-Link, master station
 - 2) CC-Link, remote device station
 - 3) PROFIBUS DP, slave
 - 4) DeviceNet, slave
 - 5) PROFINET, slave
 - 6) EtherNet/IP, slave

● When exporting our machine, the machine is deemed to be included in the "applicable listed items" controlled by the Foreign Exchange and Foreign Trade Law of Japan. When exporting the machine, please obtain required permissions, including an export license, from the Ministry of Economy, Trade and Industry (METI) or Regional Bureaus of Economy, Trade and Industry before shipment. When re-selling or re-exporting the machine, you may need to obtain permissions from METI, and the government of the country where the machine is installed.

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Figures in brackets () are the country codes.

Specifications may be subject to change without any notice.

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