brother
at your side

SPEEDIO

S300 Xd2
S500 Xd2
S700 Xd2
W1000 Xd2

R450 Xd1
R650 Xd1
M200 Xd1
M300 Xd1

U500 Xd2
H550 Xd1
DG-1

General Catalog

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]
[100T available]

U

Universal
Compact Machining Center

U500Xd2

[5AX available]
[100T available]

R

Pallet Changing
Compact Machining Center

R450Xd1

R650Xd1

H

Horizontal
Compact Machining Center

H550Xd1

M

Compact
Multi-Tasking Machine

M200Xd1

[5AX available]

M300Xd1

[5AX available]

Special Options

Rotary Table
T-200Ad

Loading System
BV7-870Ad

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

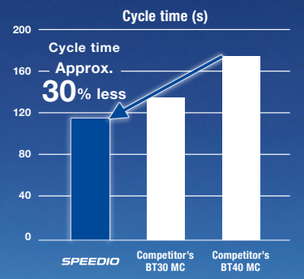
SPEEDIO Blue Technology
Solves Four Waste Elements at Production Sites

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

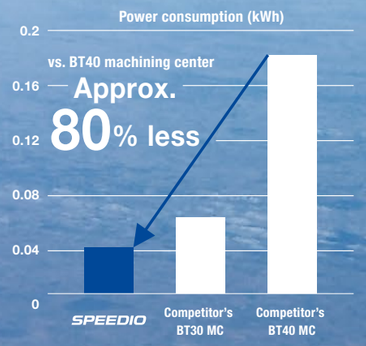
SPEEDIO Production Tools
Production Support

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

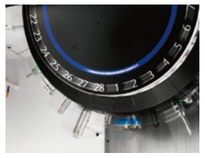
Wasted Time Reduction

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.

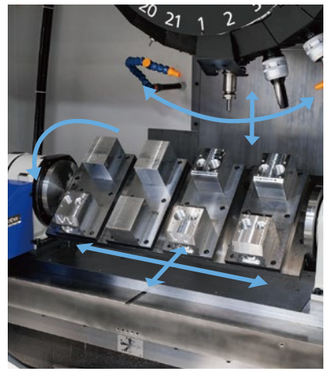
Reduction in cycle time

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



Simultaneous operation



High acc/dec spindle

Reduction in setup time / downtime

SPEEDIO Setup Tools
Setup Support

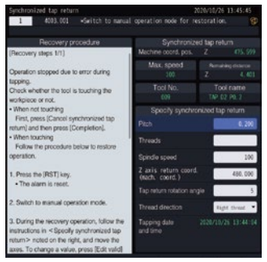
SPEEDIO Recovery Tools
Recovery Support

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 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

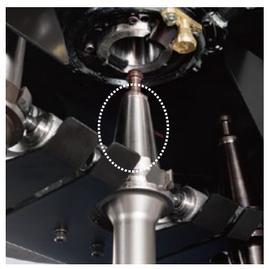
SPEEDIO Production Tools
Production Support

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.

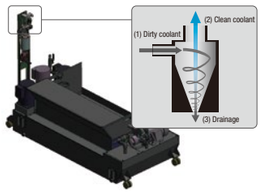
ATC tool monitoring

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 Energy Reduction

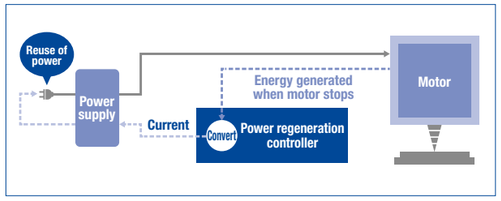
Equipped with various energy-saving functions, including a power regeneration system. Air consumption optimized by eliminating any unnecessary functions reduces wasted energy.

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

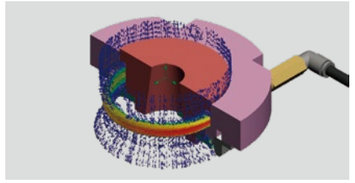
Standby mode	Turns the servomotor off when the machine is not operated for the preset time.
Automatic work light off	Turns the work light off when the preset time elapses.
Automatic power off	Turns the NC power off at the preset time.
Automatic display off	Turns the backlight of the screen off when the 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

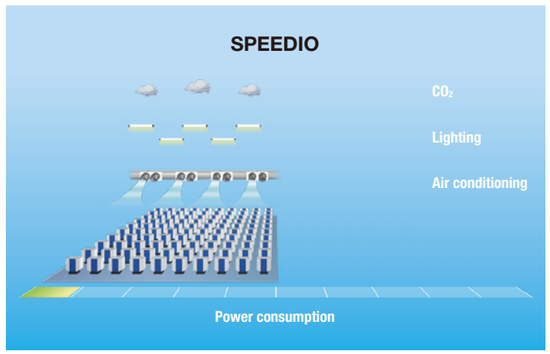
Cleaning power has been enhanced by discharging three times the conventional volume of air only when required, while halving the total amount of air used.

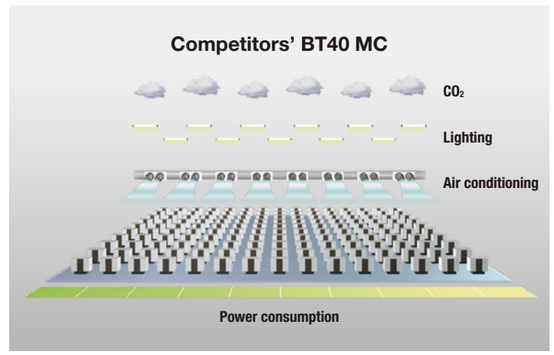
Wasted Installation Space Reduction

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

Fiscal 2024
Energy Conservation Grand Prize
(Product & Business Model Category)
Sponsor: The Energy Conservation Center, Japan

S300Xd2, S500Xd2, S700Xd2
(S700Xd2-100T excluded)

S300 Xd2

S500 Xd2

S700 Xd2

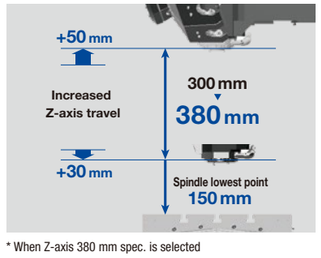
Increased Y/Z-axis travels

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.

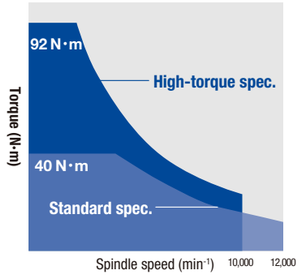


* When Z-axis 380 mm spec. is selected

Highly efficient spindle motor and improved spindle rigidity

A variety of highly efficient spindle motors are available, including the standard 12,000 min^{-1} spec., optional high-torque spec. and 27,000 min^{-1} spec. Spindle rigidity has been enhanced, enabling the machine to demonstrate its capabilities in a broad range of machining applications.

Motor torque characteristics



Spindle clamp force
Improved by 15%

Spindle bearing diameter (high-torque spec.)
Larger by 10%

28-tool magazine *2

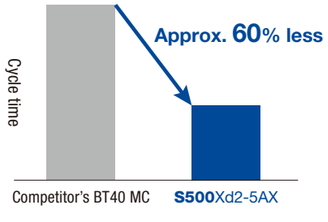
The 28-tool magazine is a compact turret magazine that achieves high-speed tool change. The maximum tool weight is 4 kg. 14-tool, 21-tool, 28-tool *2, and 100-tool *3 magazine specifications are available.

*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 13 for details.

Simultaneous 5-axis machining *4

Provided 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

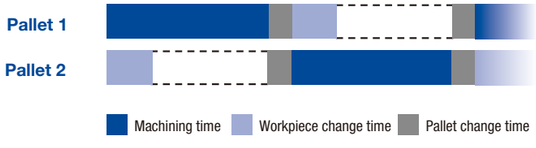
R450 Xd1

R650 Xd1

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

Non-stop machining

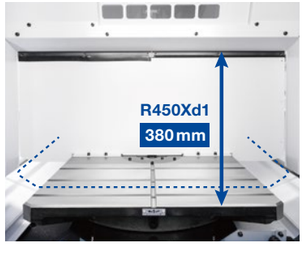
The QT (Quick Turn) table is a turntable type high-speed 2-face pallet changer. Optimized acceleration/deceleration control achieves much faster pallet change. To ensure high reliability, effects by chips etc. are minimized by a turntable that avoids lift-up motion and has a sealed structure, and positioning 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	R450Xd1	2.7 s
	R650Xd1	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		
	R450Xd1	380 mm
	R650Xd1	450 mm

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

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

In addition to 14-, 22-, and 40-tool magazines, a newly developed 28-tool magazine is available. 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 R650Xd1.

SPEEDIO Compact Multi-Tasking Machine

M

Mass production type multi-tasking machine encourages process integration

Newly developed magazine and new controller further encourage process integration

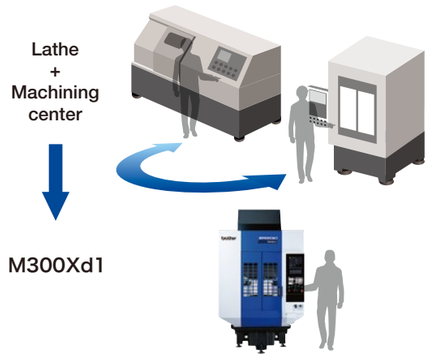
M200 Xd1

M300 Xd1

(Awarded to M200Xd1)

Complex machining

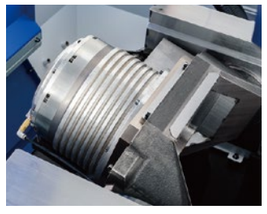
Turning and milling can be completed through one-time chucking on one machine. There is no handling between turning and milling, leading to various advantages.



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

Provided 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

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.

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

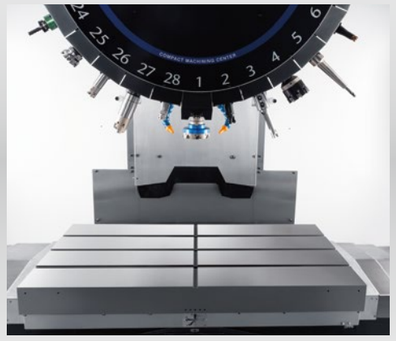
*1. Available only on the M200Xd1-5AX/M300Xd1-5AX

SPEEDIO Wide Travel Compact Machining Center

W

Wide travel model with the largest machining area among BT30 spindle machines

Unprecedented large machining area enables highly productive machining from small to large parts



W1000 Xd2

A variety of machining from small to large workpieces

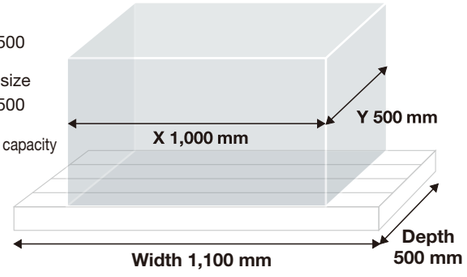
Machine's abilities to handle large workpieces and high-mix small-volume products have been further enhanced by the largest travels of any BT30 machines at X1,000 mm and Y500 mm, maximum loading capacity of 500 kg, and increased Z-axis travel.

Ample travels and table size

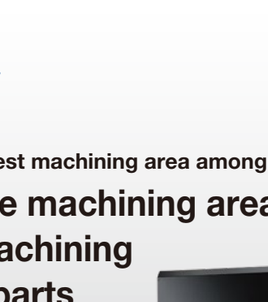
Travels
X1,000 Y500

Work area size
X1,100 Y500

Max. loading capacity
500 kg

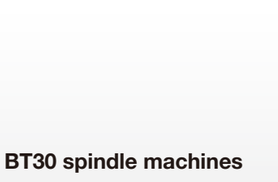


Increased Z-axis travel



Z-axis travel
300 mm ▶ 380 mm

Machining of large workpieces



Multi-part machining of small workpieces

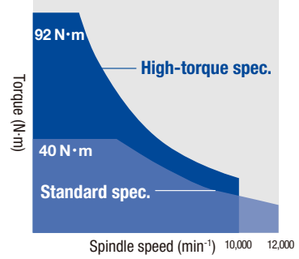
A broad range of machining

The machine can perform a broader range of machining with the newly developed 28-tool magazine (optional), newly developed 12,000 min^{-1} standard spindle motor, and improved spindle rigidity for high-torque specifications.

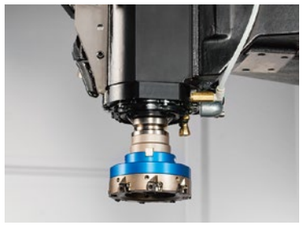
28-tool magazine

High-power spindle motor

Motor torque characteristics



Improved spindle rigidity

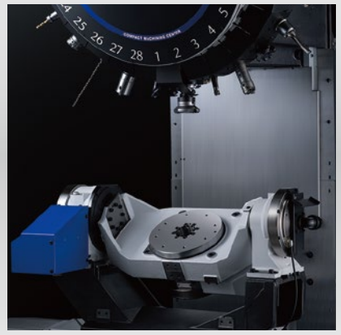


Spindle bearing diameter (High-torque spec.)	Larger by 10%

U

Equipped with tilting rotary table with jig area of max. ø500 mm

Performs universal indexing, encouraging process integration



U500 Xd2

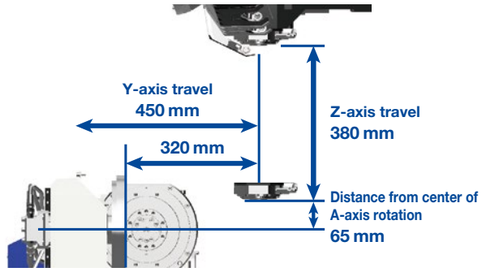
Process integration for multi-face machining

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.

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



Tilting rotary table

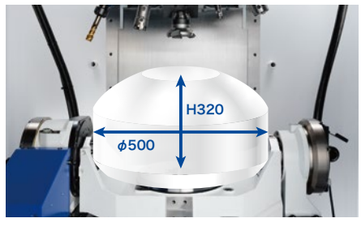
Roller gear cam mechanism is used for A and C axes, achieving high retention strength and backlash-free high-speed and highly accurate indexing.

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.



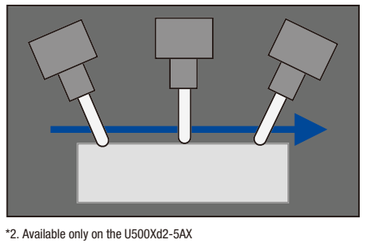
28-tool magazine

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 13 for details.

Simultaneous 5-axis machining *2

Provided 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.

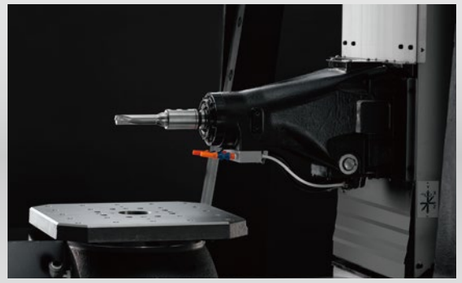


*2. Available only on the U500Xd2-5AX

H

Ample jig area and a newly developed magazine enable multi-face machining of large or long workpieces.

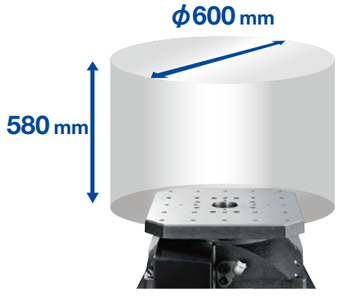
New style of SPEEDIO Horizontal Compact Machining Center now available



H550 Xd1

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 ø600 x 580 mm. *1
The jig area can be expanded to ø800 mm by moving the tool to a safe position, etc. *2
The maximum table loading capacity is 400 kg.



Loading capacity
Max. 400 kg

*1. Interference area is created depending on the tool length or tool diameter.
*2. The tool must be moved to a safe position when the B-axis rotates or the tool length must be restricted.

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.

*3. Dimension including coolant tank
*4. Compared to BT40 horizontal MC with equivalent travels

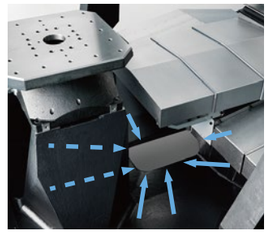
30-tool magazine

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.

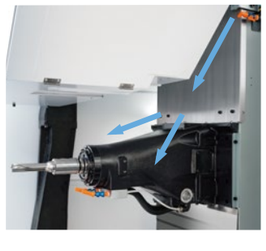
Chip evacuation performance

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



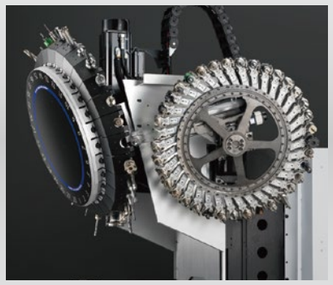
Head shower



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



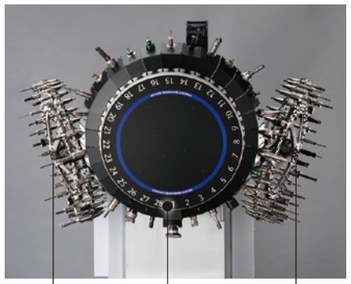
S700 Xd2-100T

U500 Xd2-100T

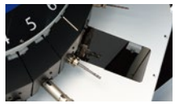
Newly developed 100-tool magazine

A tool stocker 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 stocker Turret magazine Right-side tool stocker



The tool stocker is separated from the machining chamber by the stocker 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

Relay box
160 x 75 x 35

Hydraulic/pneumatic equipment

Stainless steel valve
75 x 35 x 35

Medical instrument

Knee joint
65 x 60 x 50

Semiconductor

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 and U500Xd2-100T. Available only in Japan.

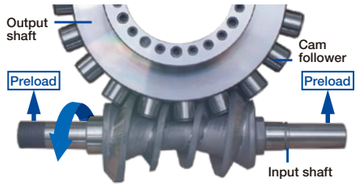
Further enhancing productivity in multi-face machining

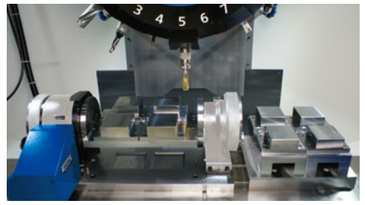
T-200Ad

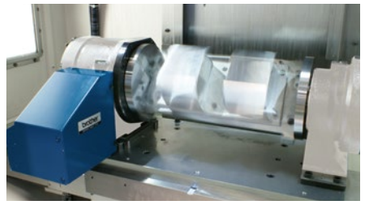
Special option for SPEEDIO

Rotary Table

Using roller gear cam mechanism







High productivity

Provides high acceleration and high rotation speed to ensure smooth operation even for jigs with large unbalanced load.

High accuracy

Achieves backlash-free operation by applying preload between the input and output shafts.

Maintenance free

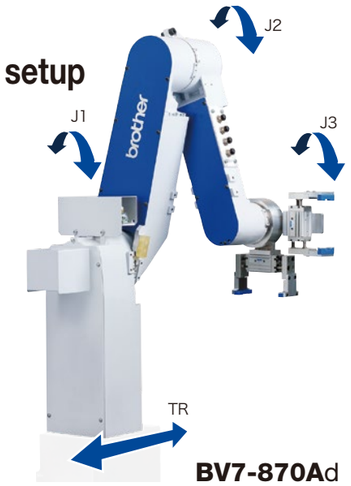
There is very little wear as the input and output shafts make rolling contact. Adjustment is not necessary for long periods.

Main specifications

Type	Right-handed, Left-handed *1	Gear ratio	1/20	Maximum loading capacity	100 (200 *3) kg
Center height	170 mm	Maximum speed	100 (50 *2) min⁻¹	Product weight	61 kg
Applicable models *4	T-200Ad (for CNC-D00)	S300Xd2 / S500Xd2 / S700Xd2 / W1000Xd2 / R450Xd1 / R650Xd1			

*1. Only right-handed type available for the R450Xd1 and R650Xd1
*2. When high inertia mode (enabled by changing parameter setting) is used
*3. When a support table is used
*4. The T-200Ad can also be used for the S300Xd1, S500Xd1, S700Xd1, and W1000Xd1

Simple & Compact Manpower saving system with easy introduction and setup



BV7-870Ad

Special option for SPEEDIO

Loading System

Integrated with the SPEEDIO

Standard equipped with a side door, and can be installed in less space

Specialized for loading/unloading workpieces

Simple structure with easy handling 4-axis articulated arm

Controller incorporated in SPEEDIO's control box

Signal connection with machine's NC completed. Both piping and wiring stored in the body.

Main specifications

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

Machine specifications

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)	700 (27.6)
	Y axis	mm(inch)	450 (17.7)			450 (17.7)
	Z axis	mm(inch)	300 (11.8)	300 (11.8) / 380 (15.0)	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)	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)	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])		250 [400 *6] (551 [881 *6])
Spindle	Spindle speed	min^{-1}	12,000min^{-1} specifications: 1~12,000 10,000min^{-1} high-torque specifications (optional): 1~10,000 16,000min^{-1} specifications (optional): 1~16,000 27,000min^{-1} specifications (optional): 1~27,000 (27,000min^{-1} specifications cannot be selected for Z-axis 380 mm specifications models)			12,000min^{-1} specifications: 1~12,000 10,000min^{-1} high-torque specifications (optional): 1~10,000
	Speed during tapping	min^{-1}	MAX 6,000 (27,000min^{-1} specifications: MAX 8,000)			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 (CTS cannot be selected for 27,000min^{-1} specification 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)			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	mm(inch)	160 (6.3) [21 tool] 250 (9.8) [14 tool]	250 (9.8)		250 (9.8)
	Max. tool diameter	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 *5 change time	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 specifications: 1.2 / 1.3 (14 or 21 tools / 28 tools) Z-axis 380 mm specifications: 1.3 / 1.4 (14 or 21 tools / 28 tools)			1.4 *13
Electric motor	Main spindle motor (10min/continuous) *2	kW	12,000min^{-1} specifications: 10.1 / 7.0 10,000min^{-1} high-torque specifications (optional): 12.8 / 9.2 16,000min^{-1} specifications (optional): 7.4 / 5.1 27,000min^{-1} specifications (optional): 8.9 / 6.3			12,000min^{-1} specifications: 10.1 / 7.0 10,000min^{-1} high-torque specifications (optional): 12.8 / 9.2
	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%, 3phase, 50/60Hz±2%			200 to 230 VAC ±10%, 3phase, 50/60Hz±2%
	Power capacity (continuous)	kVA	12,000min^{-1} specifications: 9.5 10,000min^{-1} high-torque specifications (optional): 10.4 16,000min^{-1} specifications (optional): 9.5 27,000min^{-1} specifications (optional): 9.5			12,000min^{-1} specifications: 9.5 10,000min^{-1} high-torque specifications (optional): 10.4
	Air supply Regular air pressure	MPa	0.4~0.6 (recommended value 0.5MPa *8)			0.4~0.6 (recommended value 0.5MPa *8)
	Air supply Required flow	L/min	40 (27,000min^{-1} specifications: 115)			40
Machine dimensions	Height	mm(inch)	Z-axis 300 mm specifications: 2,529 (99.6) Z-axis 380 mm specifications: 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])	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)	2,700 (5,953)
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.), leveling plates (4 pcs.)			

*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. 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 B. *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

●Please read the instruction manuals and safety manuals before using Brother products for your own safety.
When using oil-based coolant oil or when machining the materials which can cause a fire (ex. Magnesium, resin material), customers are requested to take thoroughgoing safety measures against fire.
Depending on the types of cutting material, cutting tools, coolant oil, lubrication oil, it may have an influence on the machine lifecycle.
Further questions, please contact our sales representative in charge.
●Leave 700 mm between machines as a maintenance space.

Machine specifications

Item			R450Xd1 R450Xd1 RD *12	R650Xd1 R650Xd1 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}	10,000min^{-1} specifications: 1~10,000 10,000min^{-1} high-torque specifications(optional): 1~10,000 16,000min^{-1} specifications(optional): 1~16,000	10,000min^{-1} specifications: 1~10,000 10,000min^{-1} high-torque specifications(optional): 1~10,000 16,000min^{-1} specifications(optional): 1~16,000	
	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	mm(inch)	200 (7.9)	200 (7.9)	250 (9.8)
	Max. tool diameter	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 *5 change time	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 (10min/continuous) *2	kW	10,000min^{-1} specifications: 10.1 / 7.0 10,000min^{-1} high-torque specifications: 12.8 / 9.2 16,000min^{-1} specifications: 7.4 / 5.1	10,000min^{-1} specifications: 10.1 / 7.0 10,000min^{-1} high-torque specifications: 12.8 / 9.2 16,000min^{-1} specifications: 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, 50/60Hz±2%	200 to 230 VAC ±10%, 3-phase, 50/60Hz±2%	
	Power capacity (continuous)	kVA	10,000min^{-1} specifications: 9.5 10,000min^{-1} high-torque specifications: 10.4 16,000min^{-1} specifications: 9.5	10,000min^{-1} specifications: 9.5 10,000min^{-1} high-torque specifications: 10.4 16,000min^{-1} specifications: 9.5	
	Air supply Regular air pressure	MPa	0.4~0.6 (recommended value : 0.5MPa *10)	0.4~0.6 (recommended value: 0.5MPa *10)	
	Air supply Required flow	L/min	45	45	100
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.) [R650Xd1: 5 pcs.], leveling plate (4 pcs.) [R650Xd1: 5 pcs.]		

*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. 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 R450Xd1: 200kg, R650Xd1: 300kg (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 R450Xd1: 120kg, R650Xd1: 200kg. *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/M300Xd1, U500Xd2, S300/S500/S700Xd2-5AX, or H550Xd1, 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.
●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, or S300/S500/S700Xd2-5AX, 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 2 of Appended 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

Item			M200Xd1 M200Xd1 RD *8	M200Xd1-5AX M200Xd1-5AX RD *8	M300Xd1 M300Xd1 RD *8	M300Xd1-5AX M300Xd1-5AX RD *8
CNC Unit			CNC-D00	CNC-D00v (DB)	CNC-D00	CNC-D00v (DB)
Travels	X axis	mm(inch)	200 (7.9)		300 (11.8)	
	Y axis	mm(inch)	440 (17.3)		440 (17.3)	
	Z axis	mm(inch)	305 (12.0)		380 (15.0)	
	A axis	deg.	-30~120		-30~120	
	C axis	deg.	360		360	
	Distance between table top and spindle nose end	mm(inch)	150~455 (5.9~17.9)		150~530 (5.9~20.9)	
Table	Work area size	mm(inch)	ø140 (ø5.5)		ø170 (ø6.7)	
	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	
	Max. table load inertia	kg·m²(lb·inch²)	Table side 0.29 (991) / Tale side 0.04 (137)		Table side 0.8 (2,734) / Tale side 0.04 (137)	
Spindle	Spindle speed	min⁻¹	10,000min⁻¹ specifications: 1~10,000 16,000min⁻¹ specifications (Optional): 1~16,000			
	Speed during tapping	min⁻¹	MAX. 6,000			
	Tapered hole		7/24 tapered No.30			
	BT dual contact spindle (BIG-PLUS)		Optional			
	Coolant Through Spindle (CTS)		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)			
	Cutting feed rate	mm/min(inch/min)	X, Y, Z axis: 1~30,000 (0.04~1,181) *7			
	Indexing feed rate (A and C)	min⁻¹	A axis: 60 C axis: 200		A axis: 50 C axis: 200	
ATC unit	Tool shank type		MAS-BT30			
	Pull stud type *4		MAS-P30T-2			
	Tool storage capacity	pcs.	22/28 *10			
	Max. tool length	mm(inch)	250 (9.8) *12			
	Max. tool diameter	mm(inch)	80 (3.1)			
	Max. tool weight *1	kg(lbs)	3 (6.6) <total tool weight : 40(88.2)>			
	Tool selection method		Random shortcut method			
Tool *5 change time	Tool To Tool	sec.	0.8		0.8	
	Chip To Chip	sec.	1.4		1.5	
Electric motor	Main spindle motor (10min/continuous) *2	kW	10,000min⁻¹ specifications: 10.1/7.0 16,000min⁻¹ specifications (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	
	Turning spindle motor	kW	4.2		4.6	
Power source	Power supply		200 to 230 VAC ±10%, 3-phase, 50/60Hz±2%			
	Power capacity (continuous)	kVA	10,000min⁻¹ specifications: 9.5 16,000min⁻¹ specifications (optional): 9.5			
	Air supply Regular air pressure	MPa	0.4~0.6 (recommended value 0.5MPa *6)			
	Air supply Required flow	L/min	175			
Machine dimensions	Height	mm(inch)	2,612 (102.9)		2,733 (107.6)	
	Required floor space *11	mm(inch)	1,280 x 2,667 (50.4 x 105)		1,520 x 2,667 (59.8 x 105)	
	Weight [with BV7-870Ad]	kg(lbs)	2,700 (5,953) [3,000 (6,614)]		2,850 (6,283)	
*3 Accuracy	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			
	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			
Front door			2 doors			
Standard accessories			Instruction Manual (DVD 1 set), leveling bolts (5 pcs.), leveling plates (5 pcs.)			

*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. 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.

＊Depending on the type of coolant, it may have a significant influence on the machine lifecycle. It is recommended to use the coolant which is commercially designated as high lubricity, for example Emulsion type. Especially, the coolant of chemical solution type (ex. Synthetic type) is prohibited to use, because it may cause machine damages.

＊When using CTS (Coolant Through Spindle) function, usage of the coolant of combustible type (ex. Oil-based type) is prohibited.

Machine specifications

Item			W1000Xd2 W1000Xd2 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	H550Xd1 H550Xd1 RD *8
CNC Unit			CNC-D00	《U500Xd2》CNC-D00 《U500Xd2-5AX》CNC-D00v (DB)		CNC-D00
Travels	X axis	mm(inch)	1,000 (39.4)	500 (19.7)		550 (21.7)
	Y axis	mm(inch)	500 (19.7)	450 (17.7)		400 (15.7)
	Z axis	mm(inch)	380 (15.0)	380 (15.0)		400 (15.7)
	A axis	deg.	—	-30~120		—
	B axis	deg.	—	—		360
	C axis	deg.	—	360		—
	Distance between table top and spindle nose end	mm(inch)	150~530 (5.9~20.9)	115~495 (4.5~19.5)		—
	Distance between table top and spindle center	mm(inch)	—	—		100~500 (3.9~19.7)
	Distance between table center and spindle nose end	mm(inch)	—	—		150~550 (5.9~21.7)
Table	Work area size	mm(inch)	1,100 x 500 (43.3 x 19.7)	ø260 (ø10.2)		400 (15.7) x 400 (15.7)
	Max. loading capacity (uniform load)	kg(lbs)	300 [500 *16] (661 [1,102 *16])	100 (220)		400 (882) *13
	Max. table load inertia	kg·m²(lb·inch²)	—	1.8 (6,151) [2.6 (8,885) *9]		3.4 (11,618) [5.4 (18,453) *9]
Spindle	Spindle speed	min⁻¹	12,000min⁻¹ specifications: 1~12,000 10,000min⁻¹ high-torque specifications (optional): 1~10,000 16,000min⁻¹ specifications (optional): 1~16,000	12,000min⁻¹ specifications: 1~12,000 16,000min⁻¹ specifications (Optional): 1~16,000	12,000min⁻¹ specifications: 1~12,000	12,000min⁻¹ specifications: 1~12,000 10,000min⁻¹ high-torque specifications (optional): 1~10,000 16,000min⁻¹ specifications (optional): 1~16,000
	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 50 x 56 (1,969 x 1,969 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 (Aand C)	min⁻¹	—	A axis: 50 C axis: 75 (60 *9)		—
	Indexing feed rate (B)	min⁻¹	—	—		100 (85 *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	14 / 21 / 28	100 *14	30
	Max. tool length	mm(inch)	250 (9.8)	250 (9.8)		250 (9.8)
	Max. tool diameter	mm(inch)	110 (4.3)	110 (4.3)	Turret magazine: 110 (4.3), Tool stocker: 60 (2.3) / 110 (4.3) (No adjacent tool)	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>	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)>	4.0 (8.8) / tool, <TOTAL TOOL WEIGHT: 50 (110.2)>
	Tool selection method		Random shortcut method	Random shortcut method		Random shortcut method
Tool *5 change time	Tool To Tool	sec.	0.6 / 0.7 (14 or 21 tools / 28 tools)	0.6 / 0.7 (14 or 21 tools / 28 tools)	0.7 *15	1.1
	Chip To Chip	sec.	1.3 / 1.4 (14 or 21 tools / 28 tools)	1.3 / 1.4 (14 or 21 tools / 28 tools)	1.4 *15	2.4
Electric motor	Main spindle motor (10min/continuous) *2	kW	12,000min⁻¹ specifications: 10.1 / 7.0 10,000min⁻¹ high-torque specifications (optional): 12.8 / 9.2 16,000min⁻¹ specifications (optional): 7.4 / 5.1	12,000min⁻¹ specifications: 10.1 / 7.0 16,000min⁻¹ specifications (optional): 7.4 / 5.1	12,000min⁻¹ specifications: 10.1 / 7.0	12,000min⁻¹ specifications: 10.1 / 7.0 10,000min⁻¹ high-torque specifications (optional): 12.8 / 9.2 16,000min⁻¹ specifications (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 A axis: 0.9 C axis: 0.55		X, Z axis: 1.0 Y axis: 1.8 B axis: 1.8
Power source	Power supply		200 to 230 VAC ±10%, 3phase, 50/60Hz±2%	200 to 230 VAC ±10%, 3-phase, 50/60Hz±2%		200 to 230 VAC ±10%, 3phase, 50/60Hz±2%
	Power capacity (continuous)	kVA	12,000min⁻¹ specifications: 9.5 10,000min⁻¹ high-torque specifications (optional): 10.4 16,000min⁻¹ specifications (optional): 9.5	12,000min⁻¹ specifications: 9.5 16,000min⁻¹ specifications (optional): 9.5	12,000min⁻¹ specifications: 9.5	12,000min⁻¹ specifications: 9.5 10,000min⁻¹ high-torque specifications (optional): 10.4 16,000min⁻¹ specifications (optional): 9.5
	Air supply Regular air pressure	MPa	0.4~0.6 (recommended value 0.5MPa *7)	0.4~0.6 (recommended value 0.5MPa *7)		0.4~0.6 (recommended value 0.5MPa *7)
	Air supply Required flow	L/min	45	52		45
Machine dimensions	Height	mm(inch)	2,633 (103.7)	2,818 (110.9)		2,497 (98.3)
	Required floor space *11 [with control unit door open]	mm(inch)	2,410 x 2,233 [3,071] (94.9 x 87.9 [120.9])	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])	1,557 x 2,743 [3,581] (61.3 x 108.0 [141.0])
	Weight	kg(lbs)	3,350 (7,385)	2,650 (5,843)	2,800 (6,173)	2,850 (6,284)
Accuracy *3	Accuracy of bidirectional axis positioning (ISO230-2: 1988) (ISO230-2: 2014)		X, Y, Z axis: 0.006~0.020mm (0.00024~0.00079 inch)	X, Y, Z axis: 0.006~0.020mm (0.00024~0.00079 inch) A, C axis: 28 sec or less		X, Y, Z axis: 0.006~0.020mm (0.00024~0.00079 inch) B axis: 28 sec or less
	Repeatability of bidirectional axis positioning (ISO230-2: 2014)		X, Y, Z axis: Less than 0.004mm (0.00016 inch)	X, Y, Z axis: Less than 0.004mm (0.00016 inch) A, C axis: 16 sec or less		X, Y, Z axis: Less than 0.004mm (0.00016 inch) B axis: 16 sec or less
Front door			2 doors	2 doors		2 doors
Standard accessories			Instruction Manual (DVD 1 set), leveling bolts (4 pcs.), leveling plates (4 pcs.)			

*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. Measured in compliance with ISO standards and Brother standards. *4. Brother specttications 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. Value for turret magazine plus tool stocker *15. Value for turret magazine *16. Parameter adjustment is required. (Acceleration adjustment and positioning speed are also changed according to the weight.)

NC unit specifications

Model	S300/S500/S700Xd2, W1000Xd2, R450/R650Xd1, M200/M300Xd1, U500Xd2, H550Xd1
CNC model	CNC-D00
Control axes	5 axes (X, Y, Z, 2 additional axes) R450/R650Xd1: 7 axes (X, Y, Z, 4 additional axes) M200/M300Xd1,U500Xd2: 5 axes (X, Y, Z, A, C)
Simultaneously controlled axes (Positioning)	5 axes (X, Y, Z, 2 additional axes) M200/M300Xd1,U500Xd2: 5 axes (X, Y, Z, A, C)
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.
Max. programmable dimension	±999999.999 mm, ±99999.9999 inch
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, S700Xd2-100T, U500Xd2-100T: NC language *Conversation language not available

Model	S300/S500/S700Xd2-5AX, M200/M300Xd1-5AX, U500Xd2-5AX
CNC model	CNC-D00v (DB)
Control axes	5 axes (X, Y, Z, 2 additional axes) M200/M300Xd1-5AX,U500Xd2-5AX: 5 axes (X, Y, Z, A, C)
Simultaneously controlled axes (Positioning)	5 axes (X, Y, Z, 2 additional axes) M200/M300Xd1-5AX, U500Xd2-5AX: 5 axes (X, Y, Z, A, C)
Simultaneously controlled axes (Interpolation)	Linear: 5 axes (X, Y, Z, 2 additional axes) M200/M300Xd1-5AX, U500Xd2-5AX: 5 axes (X, Y, Z, A, C)
	Circular: 2 axes
	Helical/Conical: 4 axes (3 linear axes + 1 additional axis, 2 linear axes + 2 additional axes)
Least input increment	0.0001 mm, 0.00001 inch, 0.0001 deg.
Max. programmable dimension	±999999.9999 mm, ±99999.99999 inch
Display	15-inch color LCD touch display
Memory capacity	3 Gbytes (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 not available

* "Control axes" and "Simultaneously controlled axes" indicate the maximum number of axes, which will differ depending on the shipping destination or machine specifications.
* Ethernet is a registered trademark of Xerox Corporation in the United States.

NC functions

Operation	Dry run	Monitoring	Machining load monitoring		Standby mode		Macro
	Machine lock		ATC tool monitoring		Automatic coolant off		Tape operation / FTP load operation
	Program restart		Overload prediction		Automatic work light off		Multiple skip function
	Rapid traverse override		Waveform display /		Chip shower off delay		<Optional>
	Cutting feed override		Waveform output to memory card		Chip shower energy savings operation		Submicron command *2 *5
	Background editing		Automatic thermal distortion		Energy savings mode		Interrupt type macro
	Screen shot		compensation (X, Y, and Z axes)	Support apps	Adjust machine parameters		Rotary fixture offset
	Operation level		Production performance display		ATC tool		Feature coordinates setting *3 *5
	External input signal key		Tool life / Spare tool		Tool life		Involute interpolation
	Shortcut keys		Stuck chips detection function *7		Waveform display		Spindle/turning spindle
	<Optional>	Maintenance	Tap return function		Production performance		synchronized control *8
	Spindle override		Status log		Power consumption	Functions limited to conversation language *6	Operation program
Programming	Absolute / Incremental		Alarm log		Recovery support		Schedule program
	Inch / Metric		Operation log		Inspection		Automatic tool selection
	Coordinate system setting		Maintenance notice		PLC		Automatic cutting condition setting
	Corner C / Corner R		Motor insulation resistance		Machining support without warmup		Automatic tool length compensation
	Rotational transformation		measurement	Accessories	File viewer		setting
	Synchronized tap		Tool washing filter with filter		Notebook		Automatic cutter compensation
	Subprogram		clogging detection		Calculator		setting
	Graphic display		Battery-free encoder		Register shortcut		Automatic calculation of unknown
Measurement	Automatic workpiece measurement *1		Brake load test		Display off		number input
	Tool length measurement	Automatic / Network	Computer remote	Functions limited to NC language	Menu programming		Machining order control
High speed and high accuracy	Machining parameter adjustment		OPC UA		Local coordinate system	Turning function *8	Constant peripheral speed control
	High-accuracy mode AIII		Auto notification		Expanded workpiece coordinate		Feed per revorution control
	High-accuracy mode BI		Built-in PLC (LD/ST/FBD)		system		Tool position compensation XYZ
	(Look-ahead 160 blocks)		<Optional>		One-way positioning		Nose R compensation
	Backlash compensation		CC-Link, master station		Inverse time feed		Thread cutting function
	Tool center point control *3 *4		CC-Link, remote device station		Programmable data input		
	(Look-ahead 1,000 blocks)		PROFIBUS-DP, slave		Tool length compensation		
	<Optional>		DeviceNet, slave		Cutter compensation		
	High accuracy mode BII		PROFINET, slave		Scaling		
	(Look-ahead 1,000 blocks, smooth		EtherNet/IP, slave		Mirror image		
	path offset)	Energy saving	Automatic power off		External sub program call		

*1. Measuring instrument needs to be prepared by users.
*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 (-5AX), H550Xd1, and simultaneous 5-axis control (-5AX) models.
*7. Not available on the M200Xd1 (-5AX), R450/R650Xd1, and H550Xd1.
*8. Available only on the M200/M300Xd1 (-5AX).

*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

		S300 Xd2 **S500**Xd2 **S700**Xd2	**R450**Xd1	**R650**Xd1	**M200**Xd1 **M300**Xd1	**W1000**Xd2	**U500**Xd2	**H550**Xd1
Coolant tank 50L		●					●	
Coolant tank 100L		●					●	
Coolant tank 150L		●					●	
Coolant tank 200L		●				●	●	
Coolant tank 150L with chute			●		●			
Coolant tank 200L with chute			●	●				●
Coolant tank 250L with chute				●				
Chip conveyor tank (360~415L)	Scraper type	●					●	
	Hinge+scraper type	●	●	●	●		●	●

* Coolant tanks other than 50L and 100L can be selected for Coolant Through Spindle CTS 1.5 MPa with cyclone filter. However, some coolant tanks are only available for CTS 1.5MPa 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) 3.0MPa *1
- Coolant Through Spindle (CTS) 7.0MPa *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 expantion 50A
- 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 3GB
- PLC programming software for D00
- EXIO board assembly
①EXIO board, input32/output32, additional #1
②EXIO board, input32/output32, additional #2
- Industrial network
①CC-Link, master station
②CC-Link, remote device station
③PROFIBUS DP, slave
④DeviceNet, slave
⑤PROFINET, slave
⑥EtherNet/IP, slave
- High accuracy mode B II
(Look-ahead 1,000 blocks, smooth path offset)
- Submicron command
- Interrupt type macro
- Rotary fixture offset
- Feature coodinates setting
- Involute interpolation

*1. the coolant tank is not included.

Model-specific options

	S300 Xd2 **S500**Xd2 **S700**Xd2	**R450**Xd1	**R650**Xd1	**M200**Xd1 **M300**Xd1	**W1000**Xd2	**U500**Xd2	**H550**Xd1
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				●			
Hydraulic rotary cylinder				●			
A-axis clamp (Single·Double)				●			
Rotary joint 6P						●	
Rotary joint 9+1P							●
Table light		●	●				
Outside rotary table switch for 1 or 2 axes		●	●				
Rotary table switch (for B-axis)							●
Turning diameter enlargement, ø1, 100 mm (R450Xd1) / ø1,300 mm (R650Xd1)		●	●				
Low-floor table		●	●				
Side magazine switch		●					
Front switch panel 10 holes			●				●
Outside start switch on the side			●				
Spindle/turning spindle synchronized control				●			

*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.

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.

Die casting parts manufacturing processes

Material molding → **Material deburring** → Machining → Deburring after machining → Cleaning → Inspection

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.

STEP1 (Operator) **Teaching representative points**
→ **STEP2** (DG-1) **Automatic machining path creation**
→ **STEP3** (Operator) **Path correction by intuitive operation**
→ **STEP4** (DG-1) **Automatic machining program conversion**

Teaching main representative points

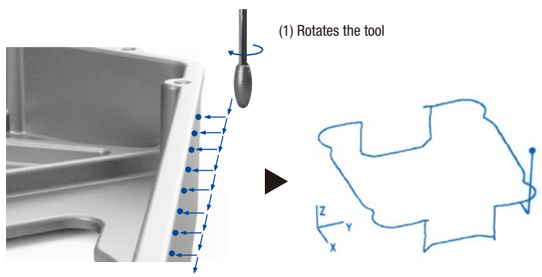
Straight line
(start point, end point)

Corner section
(start point, midpoint, end point)

Gentle curve
(start point, end point)

● : Teaching points

Machining path creation image



(2) Repeats contact for each minute line segment

(3) Automatically creates the machining path based on contact points

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	mm(inch)	80~355 (3.1~14.0)
Table	Max. loading capacity	kg(lbs)	50 (110)
	Max. table load inertia	kg·m²(lb·inch²)	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 selection method		Pickup method
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, 50/60Hz±2%
	Power capacity (continuous)	kVA	3.8
	Air supply — Regular air pressure	MPa	0.4~0.6 (recommended value 0.5MPa *5)
	Air supply — 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	
Control axes	4 axes (X, Y, Z, A)	
Simultaneously controlled axes	Positioning	4 axes (X, Y, Z, A)
	Interpolation	Linear: 4 axes (X, Y, Z, A)
		Circular: 2 axes
		Helical/Conical: 3 axes (X, Y, Z)
Least input increment	0.0001 mm, 0.00001 inch, 0.0001 deg.	
Max. programmable dimension	±999999.9999 mm, ±99999.99999 inch	

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
No. of registrable programs	4,000 (Total capacity of program and data bank)
Program format	NC language

* "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.

Please check here for detailed information
and the latest information of the base.

https://machinetool.global.brother/

Specifications may be subject to change without any notice.

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