brother
at your side

SPEEDIO

M200Xd1
M300Xd1

Compact Multi-Tasking Machine

M

Advanced mass production type multi-tasking machine expands parts suitable for process integration

Demonstrates high productivity for complex machining by turning and milling and multi-face machining. A new model with larger machining area is available. Greatly expands parts that can be produced by integrating processes.

Cutting Out the Waste

SPEEDIO

M300 Xd1

M200 Xd1

Basic specifications	
Max. spindle speed (min^{-1})	10,000 / 16,000 (optional)
Max. turning spindle speed (min^{-1})	M200Xd1: 2,000 M300Xd1: 1,500
Travels (X, Y, Z) (mm)	M200Xd1: X 200 Y 440 Z 305
	M300Xd1: X 300 Y 440 Z 380
Travels (A, C) (deg.)	A -30～120 C 360
Tool storage capacity (pcs.)	22 / 28
Rapid traverse rate (X, Y, Z) (m/min)	X50 Y50 Z50
Indexing feed rate (A, C) (min^{-1})	M200Xd1: A 60 C 200
	M300Xd1: A 50 C 200
Required floor space (mm)	M200Xd1: 1,280 x 2,667
	M300Xd1: 1,520 x 2,667

Multiple functions integrated in a compact body

Diverse range of machining possible with one machine

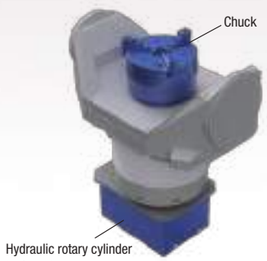
Integration of turning and milling processes enhances productivity at your premises more than ever before.
The new simultaneous 5-axis function enables machining of complex shapes.

Jig mounting examples

A wide variety of jigs, such as our specially designed flat jig, a chuck suitable for round shapes, and a centering vise suitable for square shapes, can be mounted according to the workpiece. A rotary joint with hydraulic/pneumatic ports and a hydraulic rotary cylinder are available as options.

Flat jig + Rotary joint

Chuck + Hydraulic rotary cylinder



Centering vise

Automobile

Electric water pump housing
Aluminum alloy
Size: 110 x 100 x 70

Scroll compressor parts
Aluminum alloy
Size: ø100 x 45

EV motor case
Aluminum alloy
Size: ø350 x 160

EV motor case cover
Aluminum alloy
Size: 220 x 200 x 65

Medical

Artificial knee joint
Ti-6Al-4V
Size: 65 x 60 x 50

Hip cup
Ti-6Al-4V
Size: ø60 x 30

Bone plate
Ti-6Al-4V
Size: 170 x 40 x 3

Precision equipment

High pressure regulator
Stainless steel
Size: ø55 x 50

Gas cylinder valve
Brass
Size: 45 x 75 x 100

Watch case
Stainless steel
Size: 45 x 50 x 10

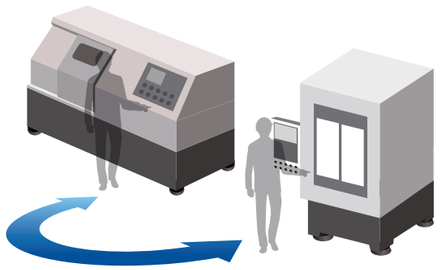
From complex machining to multi-face machining
Process integration by mass production type multi-tasking machine

A tilting rotary table with a turning spindle is mounted on the machine.
Processes are integrated on one machine, from complex machining by turning and milling to multi-face machining.

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.

Turning center + Machining center



Handling	Turning	Handling	Handling	Milling	Handling

M300Xd1

Handling	Turning	Milling	Handling

E.g.: EV motor housing

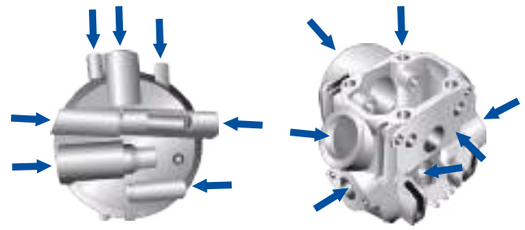
Turning locations
Milling locations

Advantages of complex machining

- **Reduction of handling time between machines**
- **Reduction of operators**
- **Improvement of machining accuracy through one-time chucking**

Multi-face machining

As the machine is equipped with a tilting rotary table capable of high-speed indexing, multi-face machining makes process integration possible, providing the same advantages as complex machining.



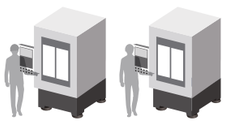
Flexible response to increase in production volume

Production equipment composed of one turning center and two machining centers can be replaced with two M200Xd1/M300Xd1 models.
(When entire machining is possible through one-time chucking)

Previously
Process division

Process 1: Turning center

Process 2: Machining center



M200Xd1/M300Xd1
Process integration

Same process

Advantages of process integration

- **Investment in minimum number of machines in case of increase in production volume**
- **Production can continue with one machine in the event a problem occurs.**

28-tool magazine

Using our newly developed 28-tool turret magazine further promotes process integration by complex machining or multi-face machining.
* The 22-tool magazine can be selected.

Double plunger lock

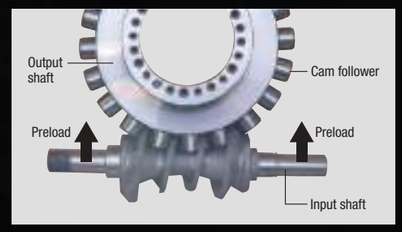
An original double plunger lock is used to secure turning tools, achieving excellent tool change repeatability.

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.

Tilt axis (A-axis)

A roller gear cam mechanism is used for the tilt axis (A-axis). High retention force and a backlash-free structure enable high-speed and highly accurate indexing.



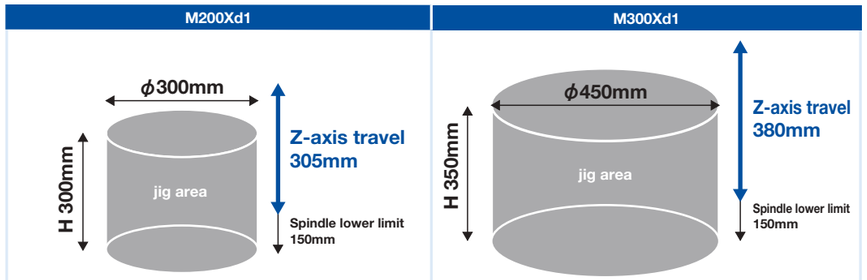
Increased Z-axis travel and jig area of M300Xd1

Expands target workpieces in conjunction with 28-tool magazine

The M300Xd1 is suitable for the machining of relatively large parts.
The M200Xd1 is a compact machine focusing on the machining of small parts.
Provides best machining according to the parts being produced.

Ample machining area

Secured ample jig area to provide flexibility for designing jigs in response to a variety of workpieces. For the M300Xd1, in particular, the jig turning diameter has been expanded to ø450 mm, the Z-axis travel has been increased to 380 mm, and the distance between table top and spindle nose end has been extended. These provide ample machining area in the Z direction, and improved tool accessibility.



	M200Xd1	M300Xd1
X/Y/Z travels	X200mm, Y440mm, Z305mm	X300mm, Y440mm, Z380mm
Distance between table top and spindle nose end *1	150～455mm	150～530mm
Jig area *2	ϕ300mmxH300mm	ϕ450mmxH350mm
Max. loading capacity *3	40kg	75kg

*1. Value when A-axis is at 0 deg. *2. There is some interference area. Please see Table Details. *3. Max. loading capacity on table side

Increased max. tool length

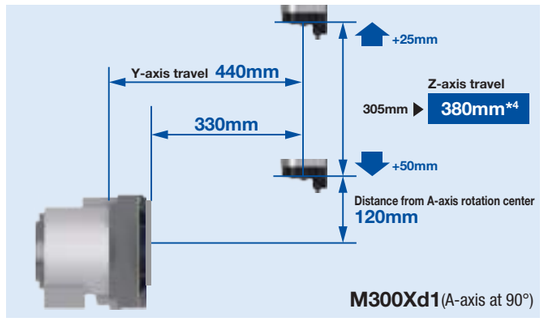
Increased the mountable tool length to 250 mm to support wider variety of machining, including deep internal turning.

Max. tool length
M200Xd1 M300Xd1 250mm

* Tools with a length of 200 mm or more may contact the jig when the magazine turns, depending on the jig height.

Improved tool accessibility when A-axis tilts

Tool accessibility has been improved by securing sufficient Y-axis travel even when the A-axis is at 90 degrees, and increasing the Z-axis travel and maximum tool length.



*4. 305 mm for the M200Xd1

Untiring pursuit of high productivity and manpower reduction through automation

Because of machine/controller integrated development, the SPEEDIO achieves outstanding high productivity by faster and optimized simultaneous operation and tool change operation.
Further, the integrated loading system makes automatic production possible with less space which reduces manpower at production sites.

Non-stop ATC

High-speed tool change has been achieved by faster and optimized spindle start/stop and magazine operation.

28-tool magazine (M200Xd1)	
Chip to Chip	1.4s
Tool to Tool	0.8s

High acceleration/deceleration spindle

Using a low inertia spindle and high acceleration/deceleration spindle motor has achieved faster spindle start/stop. In addition, the turning spindle with DD motor achieves high acceleration/deceleration speed.

Spindle start/stop time	
Machining spindle	0.2s or less
Turning spindle	0.3s or less

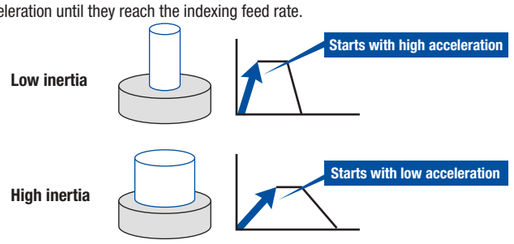
High-speed indexing

High-speed indexing has been achieved for both the clampless (standard) tilt axis (A-axis) and the turning spindle with indexing function. For the tilt axis, the clamp mechanism can be optionally selected.

	Indexing feed rate		0 to 90-deg. indexing time	
	A-axis	C-axis	A-axis	C-axis
M200Xd1	60min^{-1}	200min^{-1}	0.6s	0.7s
M300Xd1	50min^{-1}	200min^{-1}	0.7s	0.7s

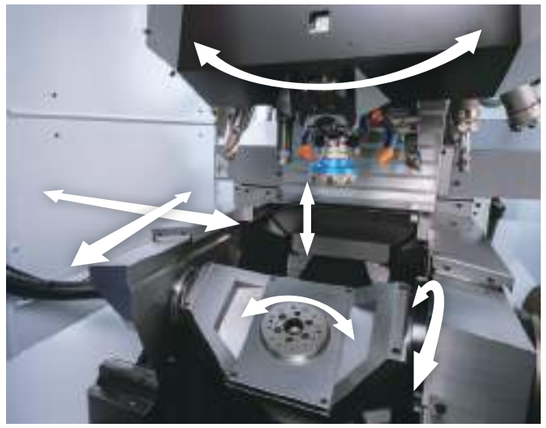
Optimized A/C-axes indexing feed rate

Based on the estimated A/C-axes inertia, the A/C-axes start with optimal acceleration until they reach the indexing feed rate.



Simultaneous operation

Wasted time has been reduced by simultaneously performing tool change and positioning X/Y and A/C axes.



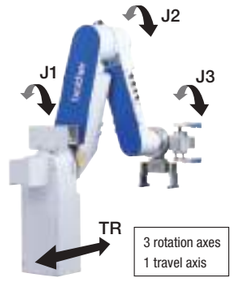
For 200Md1

Manpower reduction achieved by BV7-870Ad Loading System

■ **Integrated with the machine**
Integrated with the M200Xd1, requiring less installation space.

■ **Easy handling with minimum required functions**
Easy handling 4-axis articulated type, specialized for loading and unloading workpieces.

■ **Built-in controller**
As signal connection with machine's NC is completed, workload such as wiring is not necessary.



Demonstrates high machining capabilities from milling to turning processes

Equipped with simultaneous 5-axis machining function

A high-power motor is used for the milling spindle and the turning spindle. The tilting rotary table provides high clamp force.
These features ensure that the machine demonstrates high machining capabilities in complex machining or multi-face machining.
Tool center point control has been added to support simultaneous five-axis machining.

Milling process

As the spindle can provide high torque in the medium- and high-speed range, the machine fully demonstrates its capabilities in high-speed and highly efficient machining of aluminum or steel.

10,000 min^{-1} (standard)			
Max. torque	40N·m	Max. output	18.9kW

Turning process

Highly efficient machining is achieved by the high-power turning spindle with a maximum speed of 2,000 min^{-1} (M200Xd1) and the turning tool secured by the double plunger lock.

Turning spindle		
	Max. torque	Max. output
M200Xd1	55N·m	8.7kW
M300Xd1	102N·m	9.9kW

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 (double) *1

A-axis clamp torque *2				
M200Xd1	Single	695N·m	Double	975N·m
M300Xd1	Single	800N·m	Double	1,080N·m

*1. Only driving side for single type
*2. Value of mechanical clamp (at pneumatic 0.5 MPa) plus servo clamp

C-axis clamp

The C-axis with high clamp force enables more stringent cutting conditions to be set for machining that results in load being applied in the rotation direction, improving production efficiency.

C-axis clamp torque			
M200Xd1	345N·m	M300Xd1	450N·m

Machining capability

			ADC	Cast iron	Carbon steel
Drilling	10,000min^{-1}		D28 x 0.2 (1.1 x 0.008)	D28 x 0.15 (1.1 x 0.006)	D23 x 0.1 (0.91 x 0.004)
Tool diameter mm(inch) x Feed mm(inch)/rev	16,000min^{-1}		D21 x 0.2 (0.83 x 0.008)	D20 x 0.15 (0.79 x 0.006)	D16 x 0.1 (0.63 x 0.004)
Tapping	10,000min^{-1}		M22 x 2.5 (7/8-9UNC)	M22 x 2.5 (7/8-9UNC)	M16 x 2.0 (5/8-11UNC)
Tool diameter mm(inch) x Pitch mm(inch)	16,000min^{-1}		M16 x 2.0 (5/8-11UNC)	M16 x 2.0 (5/8-11UNC)	M12 x 1.75 (7/16-14UNC)
Facing	10,000min^{-1}	M200Xd1 M300Xd1	960 (58.6) 960 (58.6)	110 (6.7) 110 (6.7)	77 (4.7) 77 (4.7)
Cutting amount cm^3/min (inch^3/min)	16,000min^{-1}	M200Xd1 M300Xd1	660 (36.6) 660 (36.6)	73 (4.5) 73 (4.5)	48 (2.9) 48 (2.9)

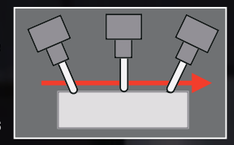
*Data obtained from tests conducted by Brother.
*These values are when the A-axis is at 0 degrees and X/Y axes are at their travel center. The above machining capability may not be achieved depending on conditions, including usage environment, tools in use, and coolant.

Simultaneous 5-axis machining

Tool center point control comes with a variety of functions. This achieves high-speed and highly accurate simultaneous 5-axis machining in combination with a backlash-free tilting rotary table.

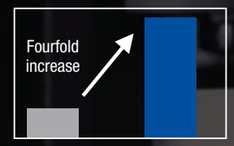
Tool center point control

Equipped with tool center point control where machining is performed by changing the tool direction relative to the workpiece. Optimal acceleration by look-ahead up to 1,000 blocks and two types of control (G43.4 and G43.5) achieve simultaneous 5-axis machining.



Processing of minute line segments

For the new CNC-D00 controller, the CPU capacity has been greatly increased to enhance processing of minute line segments by four times the previous controller. This enables high-speed processing of CAM data with small tolerance.



Functions related to simultaneous 5-axis machining

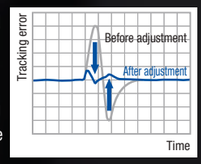
The simultaneous 5-axis spec. machine (5AX) is standard provided with tool center point control, submicron command, feature coordinates setting, and memory capacity of 3 Gbytes to save large volume of data.

NC functions related to simultaneous 5-axis machining
Tool center point control (look-ahead 1,000 blocks), submicron command, feature coordinates setting, memory capacity (3 Gbytes)

* All functions are standard on the M200Xd1-5AX/M300Xd1-5AX.

Improvement of A/C-axes tracking

The A/C-axes cutting feed is automatically adjusted based on the estimated inertia to reduce the tracking errors on the A/C-axes, achieving stable three-dimensional machining accuracy.



Equipped with new “CNC-D00” controller for improved usability

Enhanced accessibility to make setup easier

Intuitive operation is possible with new apps and 15-inch vertical LCD touch panel display.
Waste-free operation is possible in setup, machining adjustment, production, and recovery process, leading to improved work efficiency and operating rate.
Accessibility to the machine has been enhanced to enable smooth setup including workpiece change.

New user interface

Usability has been greatly improved by grouping relevant functions, creating new support apps that are intuitive with improved operability and visibility, providing useful accessories (calculator, notebook, file viewer etc.), and making operation on conventional screens possible on the touch panel.

List of support apps

Conventional screen (position screen)

Accessibility and workability

The jig or workpiece can be tilted toward the operator, which enables operators to perform setup, including workpiece change, without any strain.

Accessibility to jig or workpiece with A-axis at -30 deg.

Setup support

Equipped with functions to easily perform setup, such as an ATC tool app that enables all magazine tool settings to be performed on one screen, menu programming that enables you to create NC programs by following instructions on the screen, and an on-screen help function.

ATC tool app

Machining adjustment support

Equipped with functions to easily perform optimal machining adjustment to improve productivity, such as a machining parameter adjustment app that enables you to easily adjust parameters according to machining details and a machining load waveform display/saving function.

Waveform display app

Production support

Equipped with functions to improve the operating rate, such as real time tool monitoring to eliminate defects, displaying production performance, power consumption etc. as a graph, and PLC/network functions to meet peripheral equipment and automation requirements.

Production performance app

Recovery support

Equipped with functions to prevent failure or ensure quick recovery, such as maintenance time notice, displaying details when an alarm occurs, and guidance for recovery/check work.

Recovery support app

Home screen

Information required for production, such as workpiece counter and tool life, is collected on the home screen. Shortcut keys are provided for screens frequently used so you can open them by one touch.

Reliability that ensures high productivity

High environmental performance that encourages carbon neutrality

High reliability has been achieved by thorough evacuation and efficient handling of chips, and maintenance functions to prevent failures. Low power and air consumption greatly reduces CO_2 emissions, creating an earth-friendly plant environment.

Reliability and maintenance functions for prevention of defects/failures and quick recovery

To maintain productivity at plants, the machine is equipped with many functions that can prevent possible defects in daily production sites, such as tool abrasion, omission of tool attachment, and re-machining of the same workpiece, and functions that assist with recovery in the case of machine failure or other problems.

ATC tool monitoring

Checks the presence of a spindle tool before and after tool change, tool over spindle, positional shift of tool key etc. without using a sensor.

Machining load monitoring

Machining load applied to the spindle is monitored to issue an alarm when the load is not within the preset range.

Detection of chips caught in spindle (M300Xd1)

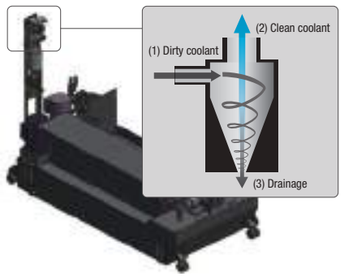
Chips caught between the spindle and the holder during ATC are detected without using a sensor. Detecting any chips caught during ATC prevents defects being delivered to downstream processes.

Approach to carbon neutrality

Constantly strives to achieve sustainable society through development/sales of products with less environmental load and energy consumption.

Tank with cyclone filter and no consumables (special option for CTS)

Clean coolant is returned to the clean tank through another tank with a cyclone filter that removes fine chips. Coolant is kept clean this way to reduce the filter change frequency and extend the service life of the pump.



Low power consumption

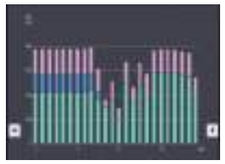
In addition to the low inertia spindle and highly efficient spindle motor, the machine is equipped with various energy saving functions to lower power consumption.

Energy-saving technologies

Power regeneration system, highly efficient spindle motor, energy-saving pump, LED work light, energy-saving NC functions

Power consumption app

Current and past power consumption can be checked.



Low air consumption

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

Air purge

A highly airtight structure achieved through repeated flow rate analysis reduces the amount of air used.

Spindle air blow

Amount of air used is reduced by discharging three times the conventional volume of air only when required.

Center trough structure

Center trough structure with tilted base and expanded opening provides high chip evacuation performance.

Tool washing, air-assisted type (optional)

Air-assisted high discharge pressure and discharge amount steadily remove chips attached to the holder. Performance is not affected by clogging of the filter.

Chip conveyor

A two-step structure (hinged plate and scrapper) is used, enabling evacuation of chips in a variety of sizes and shapes. An oil skimmer can be added.

Coolant tank with chute

Coolant flows through the chute to evacuate chips. The chute can be separated from the coolant tank, making maintenance easier.

Coolant Through Spindle (CTS)

Can be selected from 3 MPa or 7 MPa. Pump and tank are not included.

Head coolant nozzle

Coolant can reliably be applied to the machining section as the tool and nozzles are set in place.

Tool washing, air-assisted type

High discharge pressure and flow rate efficiently remove chips attached to the holder. Equipped with a filter clog warning function.

Rotary joint

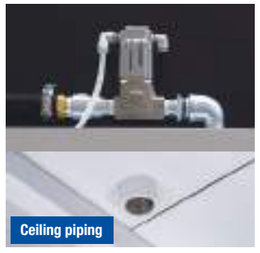
Provided with four ports (two hydraulic, one pneumatic, and one common for hydraulic, pneumatic, and coolant), and attached to the bottom of the turning spindle motor.

Hydraulic rotary cylinder

Attached to the bottom of the turning spindle motor. Provided with one pneumatic port for seating detection. Please prepare a hydraulic unit or jig separately.

Chip shower

Chip shower pipes are located at the upper section inside the machine for more efficient flow, and flexible shower nozzles can be directed to the side of the machine cover or sections where chips tend to accumulate.

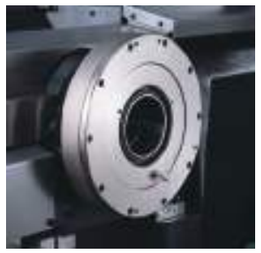


Fixture shower valve unit

Consists of jig washing valves and pipes to the ceiling of the machine. Pipes from the machine to the required location must be prepared by customers.

Cleaning gun

Helps clean the workpiece or chips inside the machine after machining.



A-axis clamp (single, double)

In addition to the single type, a double type that clamps a workpiece on the left and right sides has been added. Effective for machining where a higher load is applied.

Side door with transparent window

Makes setup from the side easier. The machining room can be checked through the window. The manual pulse generator can also be operated.

Side cover with transparent window

External light is drawn in to make the inside of the machine brighter and improve visibility.

Work light (right side, left side)

LED lamps are used to extend lamp life and save energy.

Signal light (1, 2, or 3 lamps)

LED lamps are used. No maintenance required. Can be tilted to improve visibility.

Automatic oil lubricator

Regularly applies oil to all lubricating points on the three axes.
* Manual greasing is required for the standard specification model.

Automatic grease lubricator

Regularly applies grease to all lubricating points on the three axes.
* Manual greasing is required for the standard specification model.

Automatic door with switch panel 10 holes

A motor-driven door is used, achieving smooth operation.

Area sensor

Optical area sensors are used. Use area sensors to prevent operators being caught in the automatic door.

Manual pulse generator

A cable is provided for the manual pulse generator, making setup easier. Equipped with emergency stop and enable switches.

Tool breakage detector, touch type

A touch switch type tool breakage detector is available.

Spindle override

Spindle speed can be changed without changing the program.

Switch panel (8 holes or 10 holes)

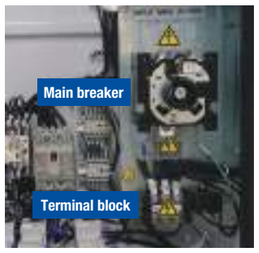
Various switches, such as automatic door open/close switches, are set in specific locations. The switch panel (8 holes) is also available so that the position of the manual pulse connector can be changed.

Master on circuit

Master on circuit and switch can be attached.
* A switch panel (8 holes or 10 holes) is required separately.

Data protection switch, key type

Changing the operation level is enabled or disabled by the key.



Power supply expansion 50A

The capacity of the main breaker can be increased from 30A to 50A. The size of the relevant wiring increases accordingly. A terminal block for external equipment power supply is provided under the main breaker.

Origin alignment mark

Aligning X/Y/Z-axes origin alignment marks clearly indicates home positions.

RS232C 25-pin connector

RS232C 25-pin connector can be attached to the side of the control box.

- Coolant tank
  1) Coolant tank with chute, 150L
  2) Coolant tank with chute, 150L for 1.5 MPa CTS pump with cyclone filter
  3) Chip conveyor tank, 370L
  4) Chip conveyor tank, 370L with oil skimmer
  5) Chip conveyor tank, 370L for 1.5 MPa CTS pump with cyclone filter
  6) Chip conveyor tank, 370L for 1.5 MPa CTS pump with cyclone filter and oil skimmer
- Coolant through spindle (CTS) piping, Max. 3 MPa
- Coolant through spindle (CTS) piping, Max. 7 MPa
- Head coolant nozzle
- Rotary joint 4 ports
- Hydraulic rotary cylinder
- Chip shower
- Tool washing, air-assisted type
- Fixture shower valve unit
- Cleaning gun
- Mesh basket for collecting chips
- A-axis clamp (single, double)
- Side cover with transparent window, one side
- Side door with transparent window, right side
- Work light (1 lamp for right side, 1 lamp for left side)
- Signal light (1, 2, or 3 lamps)
- Automatic oil lubricator
- Automatic grease lubricator
- Automatic door with switch panel 10 holes
- Area sensor
- Switch panel (8 holes or 10 holes)
- Manual pulse generator with enable switch
- Connector and hook for manual pulse generator with enable switch
- Tool breakage detector, touch type
- RS232C 25-pin connector at control box
- Spindle override
- Master on circuit
- Data protection switch, key type
- Grip cover for 22/28-tool magazine
- Parts name sticker set
- Origin alignment mark
- 100V outlet in control box
- Power supply expansion 50A
- Transformer box
- Specified color
- EXIO board assembly
  1) EXIO board, input 32/output 32, additional #1
  2) EXIO board, input 32/output 32, additional #2
- PLC programming software for D00
- 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
- Memory expansion 3 Gbytes *1

*1. Standard on the M200Xd1-5AX/ M300Xd1-5AX.

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.	120~-30		120~-30	
	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-area)	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 change time *5	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		AC 200 to 230 V±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	kg(lbs)	2,700 (5,953) [3,000 (6,614) with BV7-870Ad]		2,850 (6,283)	
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			
	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			
Standard accessories			Instruction Manual (DVD 1 set), leveling bolts (5 pcs.), leveling plate (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. 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. Value when using high accuracy mode B and tool center point control. *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 adjacent pods. *11. Dimensions not including the coolant tank and 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.

*When you select the coolant tank with chute, you must also select the chip shower. In addition, chips may not be evacuated correctly depending on the shape of chips. Please contact your local distributor for details.
*The rotary joint and rotary cylinder must be used with hydraulic oil supplied. If hydraulic oil is not supplied, only conduct indexing operation or remove the rotary joint and rotary cylinder from the turning spindle motor.
*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 our sales representative.
●Leave 700 mm between machines as maintenance space.
●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.
●When exporting our machine, 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.

NC unit specifications

CNC model	《M200Xd1, M300Xd1》 《M200Xd1-5AX, M300Xd1-5AX》		CNC-D00 CNC-D00v (DB)
Control axes	5 axes (X, Y, Z, A, C)		
Simultaneously controlled axes 《M200Xd1》 《M300Xd1》	Positioning	5 axes (X, Y, Z, A, C)	
	Interpolation	Linear: 4 axes (X, Y, Z, 1 additional axis)	
		Circular: 2 axes	
		Helical/Conical: 3 axes (X, Y, Z)	
Simultaneously controlled axes 《M200Xd1-5AX》 《M300Xd1-5AX》	Positioning	5 axes (X, Y, Z, A, C)	
	Interpolation	Linear: 5 axes (X, Y, Z, 2 additional axes)	
		Circular: 2 axes	
		Helical/Conical: 4 axes (3 linear axes + 1 additional axis, 2 linear axes + 2 additional axes)	

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	《M200Xd1, M300Xd1》	500 Mbytes, 3 Gbytes (optional)
	《M200Xd1-5AX, M300Xd1-5AX》	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 *Conversational language not available	

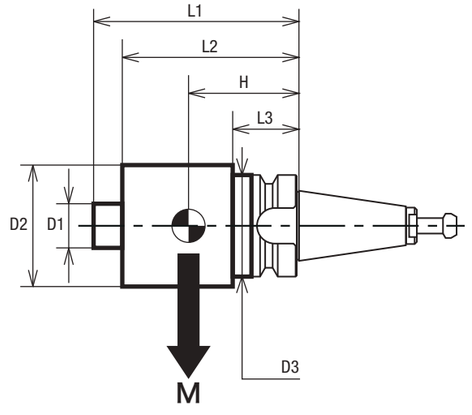
*"Control axes" and "Simultaneously controlled axes" indicate the maximum number of axes, which will differ depending on the destination country and the machine specifications.
*Ethernet is a registered trademark of Xerox Corporation in the United States.

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
Programming	Absolute / Incremental
	Inch / Metric
	Coordinate system setting
	Corner C / Corner R
	Rotational transformation
	Synchronized tap
	Subprogram
	Graphic display
Measurement	Automatic workpiece measurement *1
	Tool length measurement
High speed and high accuracy	Machining parameter adjustment
	High-accuracy mode AIII
	High-accuracy mode BI (look-ahead 160 blocks)
	Backlash compensation
	Tool center point control *2 (Look-ahead 1,000 blocks) <Optional>
	High accuracy mode BII (Look-ahead 1,000 blocks, smooth path offset)
Monitoring	Machining load monitoring
	ATC tool monitoring
	Overload prediction
	Waveform display / Waveform output to memory card
	Heat expansion compensation system II (X, Y, and Z axes)
	Production performance display
	Tool life / Spare tool
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
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
Energy saving	Automatic power off
	Standby mode
	Automatic coolant off
	Automatic work light off
	Chip shower off delay
Support apps	Adjust machine parameters
	ATC tool
	Tool life
	Waveform display
	Production performance
	Power consumption
	Recovery support
	Inspection
	PLC
Accessories	File viewer
	Notebook
	Calculator
	Register shortcut
	Display off
NC language functions	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
	External sub program call
	Macro
	Operation in tape mode
	Multiple skip function <Optional>
	Submicron command *3
	Interrupt type macro
	Rotary fixture offset
	Feature coordinates setting *3
	Involute interpolation
Turning functions	Constant peripheral speed control
	Feed per revolution control
	Tool position compensation (X, Y, Z)
	Nose R compensation
	Thread cutting function

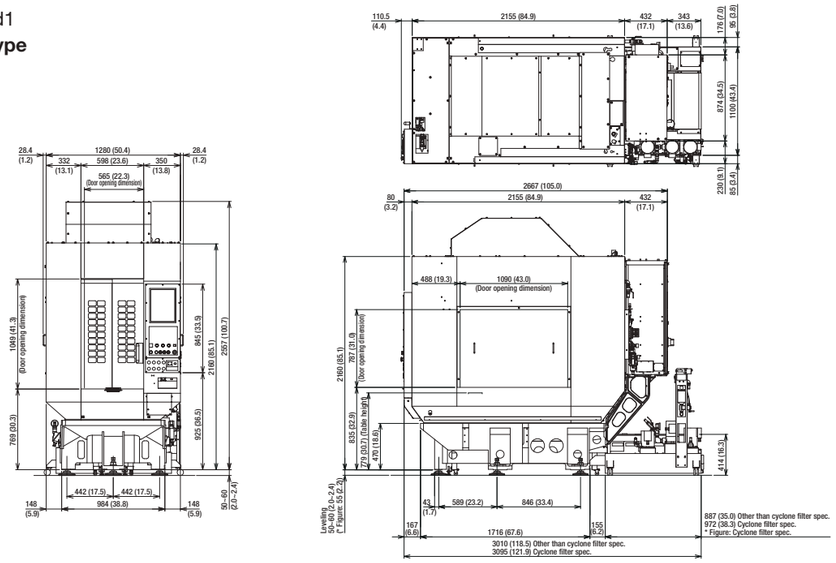
*1. Measuring instrument needs to be prepared by users. *2. Available only for the M200Xd1-5AX/M300Xd1-5AX *3. Standard on the M200Xd1-5AX/M300Xd1-5AX

Tool dimension drawing

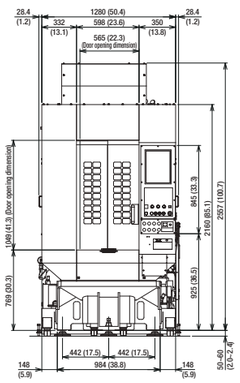


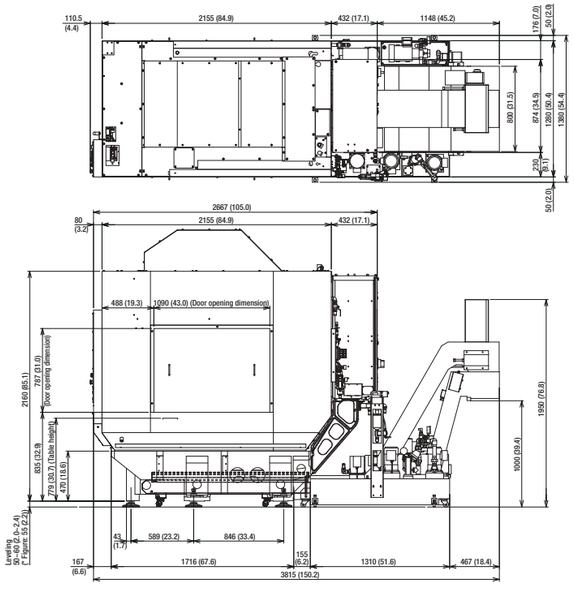
Max. spindle speed	10000min⁻¹/ 16000min⁻¹	
Spindle taper	7 / 24 No.30	
Tool shank	MAS-BT	
Pull stud	MAS-P30T-2 (30°)	
Total tool weight in magazine	M total 40kg (22/28 Tools)	
Restrictions on tools	D1 ≦ 40 mm	D1 ≦ 40 mm
	L1 ≦ 250 mm	L1 ≦ 250 mm
	D2 ≦ 80 mm	D2 ≦ 55 mm
	L2 ≦ 160 mm	L2 ≦ 160 mm
	D3 ≦ 46 mm	D3 ≦ 46 mm
	L3 ≧ 30 mm	L3 ≧ 30 mm
	M ≦ 3 kg	M ≦ 2 kg
	M x H ≦ 180 kg·mm	M x H ≦ 100 kg·mm
Restrictions on tool balance	100g·mm	50g·mm
Restrictions on spindle speed	10000min⁻¹	16000min⁻¹

M200 Xd1
Chute type

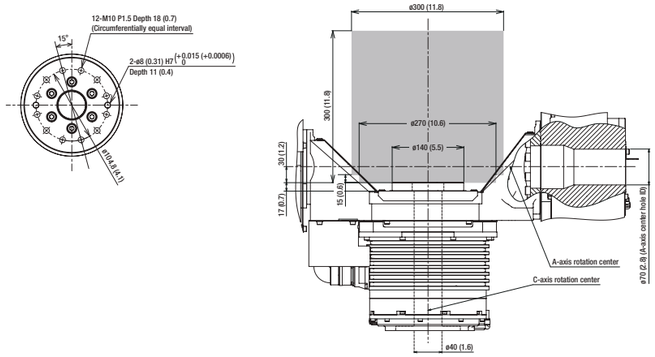


M200 Xd1
Chip conveyor type

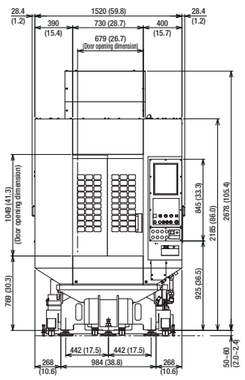


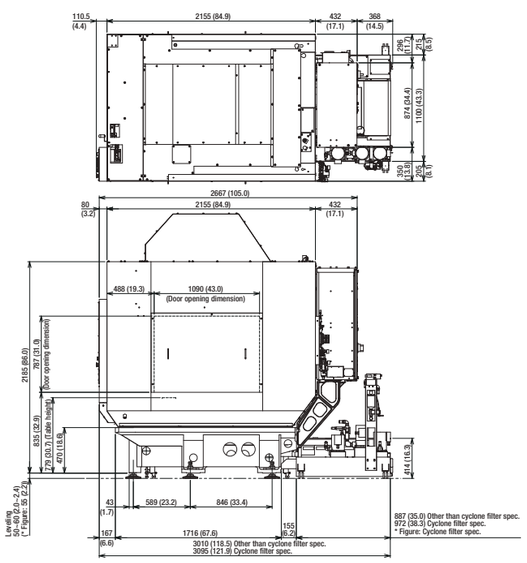


M200 Xd1
Table details

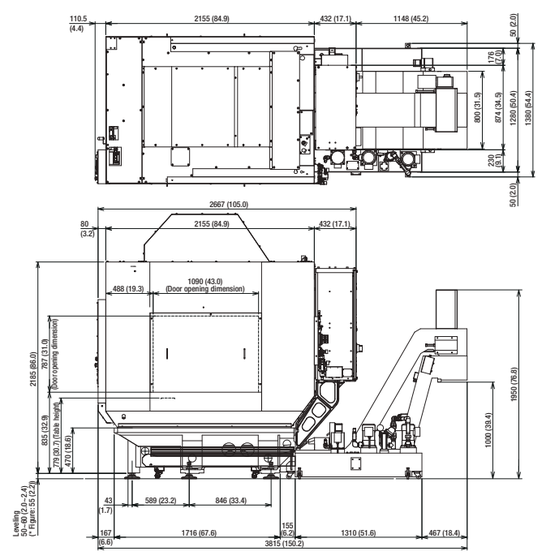


M300 Xd1
Chip conveyor type

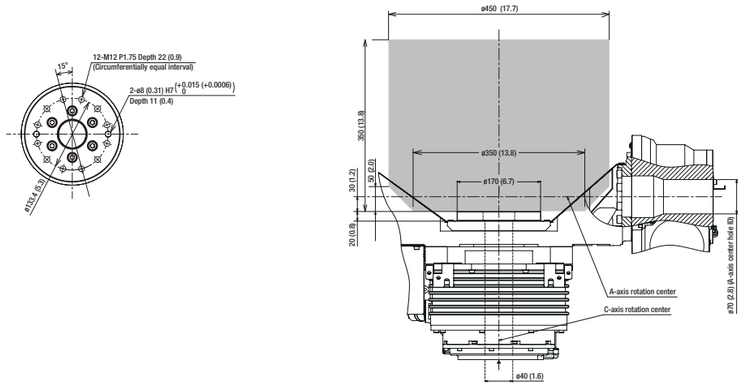




M300 Xd1
Chip conveyor type



M300 Xd1
Table details



mm (inch)

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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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