

SPEEDIO

brother
at your side

Multi-Tasking Machine

M200X3 M300X3

Global Service Sites

Local dealers are available to provide services in each region, in addition to the sites below.

U. S. A.

BROTHER INTERNATIONAL CORP.
MACHINE TOOLS DIV. TECHNICAL CENTER
2200 North Stonington Avenue, Suite 270, Hoffman Estates, IL 60169, U.S.A.
PHONE:(1)224-653-8415 FAX:(1)224-653-8821

Germany

BROTHER INTERNATIONALE INDUSTRIEMASCHINEN GmbH
MACHINE TOOLS DIVISION FRANKFURT TECHNICAL CENTER
Hochster Str.94, 65835 Liederbach, Germany
PHONE:(49)69-977-6708-0 FAX:(49)69-977-6708-80

India

BROTHER INTERNATIONAL (INDIA) PVT LTD.
Machine Tools Bengaluru Technical Center
Park Landing, Ground Floor, Municipal No.5AC-709, 2nd Block, HRBR Extension,
Bengaluru - 560 043 Karnataka, India
PHONE:(91)80-43721645

China

BROTHER MACHINERY (SHANGHAI) LTD.
(MACHINE TOOLS DIV.) SHANGHAI TECHNICAL CENTER
Unit 01, 5/F., No.799, West Tianshan Rd., ChangNing District Shanghai 200335, P.R.China
PHONE:(86)21-2225-6666 FAX:(86)21-2225-6688

China

BROTHER MACHINERY (SHANGHAI) LTD.
CHONGQING BRANCH (MACHINE TOOLS DIV.) CHONGQING TECHNICAL CENTER
Room 105, No.51 Xuefudadao, Nan' an District, Chongqing Province, 400074, P.R.China
PHONE:(86)23-6865-5600 FAX:(86)23-6865-5560

Mexico

BROTHER INTERNACIONAL DE MÉXICO, S.A. DE C.V.
División de Maquinaria Industrial Centro Técnico Querétaro
Calle 1 No.310 Int 15, Zona Industrial Jurica, Parque Industrial Jurica,
Querétaro, QRO C.P. 76100 México
PHONE:(52)55-8503-8760 FAX:(52)442-483-2667

Thailand

BROTHER COMMERCIAL (THAILAND) LTD.
MACHINE TOOLS TECHNICAL CENTER
317 Pattanakarn Road, Pravet Sub-District, Pravet District, Bangkok 10250, Thailand
PHONE:(66)2321-5910 FAX:(66)2321-5913

India

BROTHER INTERNATIONAL (INDIA) PVT LTD.
Machine Tools Gurugram Technical Center
CE SERVICED OFFICES PVT. LTD., DLF CYBER HUB, Building No 10, Tower A, Level 1,
Phase 3, DLF Cyber City, Gurugram - 122002 Haryana - India
PHONE:(91)80-43721645

China

BROTHER MACHINERY (SHANGHAI) LTD.
DONGGUAN BRANCH (MACHINE TOOLS DIV.) DONGGUAN TECHNICAL CENTER
1F, Fuyuan Business Center Building, No.1 Lane 13, Maiyuan Road, Xin'an community,
Chang'an Town, Dongguan City, Guangdong Province, 523008, P.R.China
PHONE:(86)769-2238-1505 FAX:(86)769-2238-1506

Figures in brackets () are the country codes.

- 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.
- 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.

Specifications may be subject to change without any notice.

brother

BROTHER INDUSTRIES, LTD.
Machinery Business Division

1-5, Kitajizoyama, Noda-cho, Kariya-shi,
Aichi-ken 448-0803, Japan
PHONE: 81-566-95-0075
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<https://www.brother.com>

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Evolving Process Integration Machine

Brother's competitive high-productivity technologies are fused with process integrated machining where both turning and milling are performed on one machine, achieving great improvement in production efficiency when machining mass production parts.

Two new models have been added that can handle larger workpieces and with an option to install a manpower reduction unit, to become a Series that can handle a variety of machining.



SPEEDIO
M300X3

SPEEDIO



SPEEDIO
M200X3



SPEC

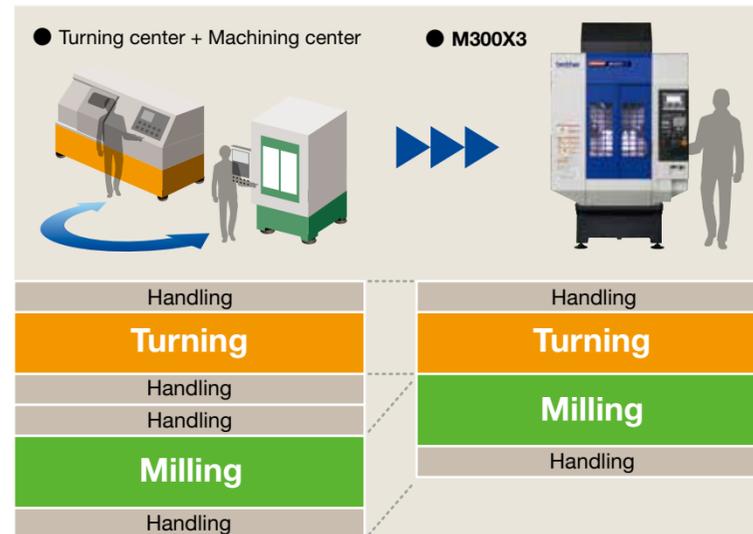
Basic specifications

Max. spindle speed (min ⁻¹)	10,000 / 16,000 (Optional)
Max. turning spindle speed (min ⁻¹)	M300X3 : 1,500 M200X3 : 2,000
Travels (X, Y, Z) (mm)	M300X3 : X 300 Y 440 Z 305 M200X3 : X 200 Y 440 Z 305
Travels (A, C) (deg.)	A 120~-30、 C 360
Tool storage capacity (pcs.)	22
Rapid traverse rate (X, Y, Z) (m/min)	X 50 Y 50 Z 50
Indexing feedrate (A, C) (min ⁻¹)	M300X3 : A50 C200 M200X3 : A60 C200
Required floor space (mm)	M300X3 : 1,520 × 3,862 M200X3 : 1,280 × 3,862
Coolant Through Spindle (CTS)	Optional
BT dual contact spindle (BIG-PLUS)	Optional

Features and effects

Process integration in one machine

Workpieces previously machined using a turning center and a machining center can now be machined on a single machine with machining processes integrated. This reduces handling time between machines.



Example of process integration

Turning and multi-face milling are performed on one M200X3 (automotive parts).

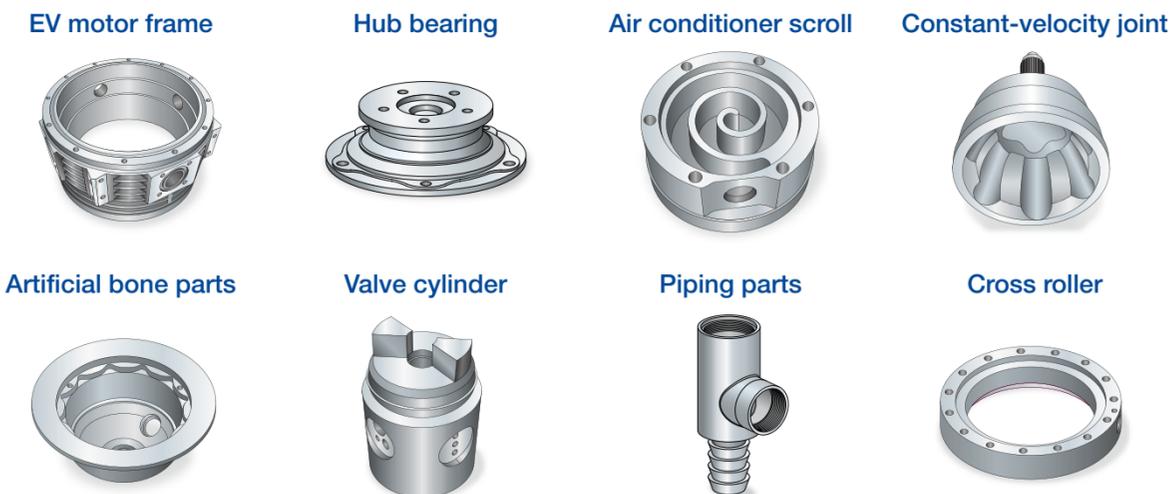


Turning location Milling location

Workpiece reattachment not necessary between turning center and machining center



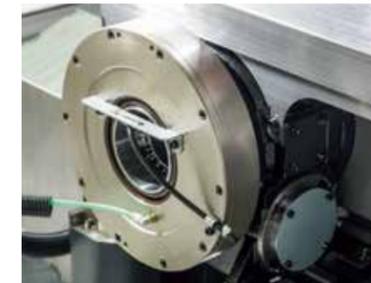
Target machining parts



Machine structure

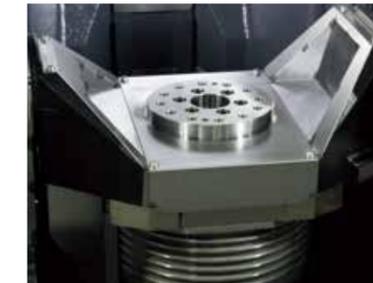
The machine has an original design, including the magazine structure, that keeps the machine compact while maintaining the rigidity of each axis and the balance of rigidity.

Tilt axis (A-axis)



A roller gear cam is used for the tilt axis (A-axis). High retention force and a backlashless structure achieve high-speed and high-accuracy indexing.

Turning spindle (C-axis)



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

Double plunger lock



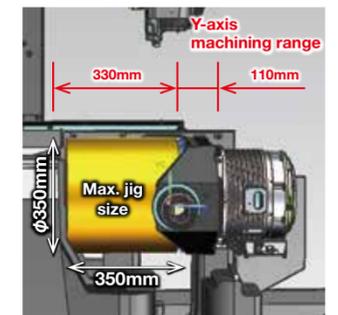
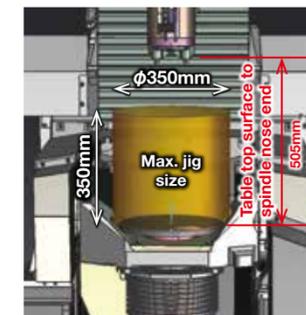
An original double plunger lock is used to secure turning tools, achieving excellent tool change repeatability.

Expansion of machining area

Wide machining area has been secured to allow more flexibility for jig design to meet a variety of workpiece machining.

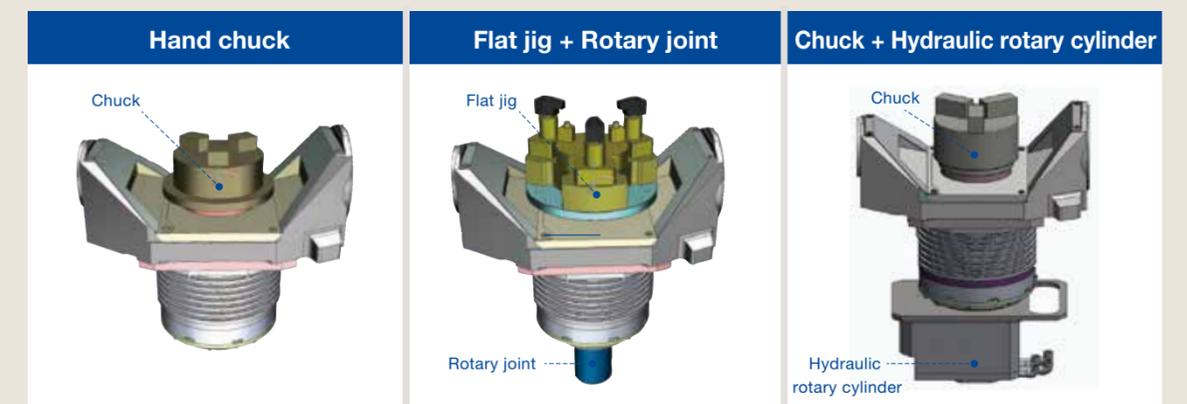
- The distance between the table top surface and the spindle nose end has been increased to secure sufficient area for the jig, workpiece and tool in the Z-axis direction.
- Distance between table top surface and spindle nose end (M300X3): 505 mm

M300X3 Max. jig size
φ350mm × H350mm



Example of jig configuration

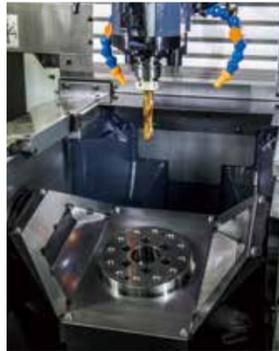
Applicable to a variety of jigs from manual clamping to automatic clamping



*General or special options are included in figures. Please contact your local distributor for chucks that can be mounted.

Productivity

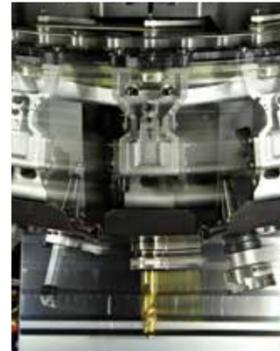
Fast acceleration/deceleration spindle



Using a fast acceleration / deceleration spindle motor and highly-responsive servo control achieves quicker starting and stopping of the spindle and turning spindle.

Start / stop time
Spindle : 0.2s
Turning spindle : 0.3s

High-speed tool change



Using a compact 22-tool magazine with excellent weight balance and optimal control achieves high-speed tool change, with any wasted operation eliminated.

M200X3
Chip-Chip : 1.5s
Tool-Tool : 0.8s

High-speed synchronized tapping

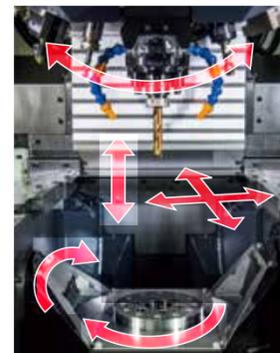


Original synchronized tapping control enables high-accuracy tapping at the fastest level in the world.

Peripheral speed:
377m/min

* M20, spindle speed 6,000 min⁻¹

Simultaneous operation



Wasted time is further reduced by positioning the X/Y/Z axes and A/C axes simultaneously with tool changes.

Reduction in non-cutting time

Loading system for manpower reduction (M200X3)

Simple, compact, and easy installation/startup

Specialized for loading/unloading workpieces

4-axis articulated arm for easy handling

Compactly installed on the side of machine

The loading system is integrated with the machine, requiring less installation space.

Controller incorporated in machine's control box

Wiring connection with NC is not necessary, and signal lines are connected. Piping, wiring, and valves for the hand are stored in the body, and the side door is standard equipped.



Milling capabilities

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

Max. torque : 40Nm Max. output : 18.9kW

		Drilling	Tapping
		Tool diameter mm (inch) × Feed mm (inch)/rev	Tool diameter mm (inch) × Pitch mm (inch)
	ADC	D28×0.2 (1.1 × 0.008)	M22×2.5 (7/8 × 9UNC)
	S45C	D23×0.1 (0.9 × 0.004)	M16×2.0 (5/8 × 11UNC)

* Data taken using a 10,000 min⁻¹ model when the A-axis is at 0 degrees and X/Y-axes are at their travel center.
* The above performance may not be achieved under some conditions, depending on usage environment, tools in use and coolant.



Turning capabilities

High-efficiency machining is achieved by the high-output turning spindle with a maximum speed of 2,000 min⁻¹, and the turning tool secured by the double plunger lock.

Max. torque
M300X3: 102Nm
M200X3: 55Nm
Max. output
M300X3: 9.9kW
M200X3: 8.7kW

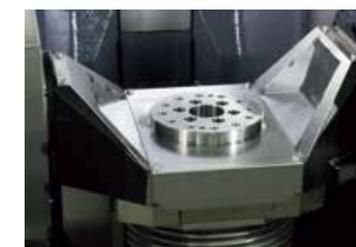


Improved clamp force

C-axis clamp force

The C-axis clamp force has almost doubled (compared to previous model). This enables more stringent cutting conditions to be set for machining that results in load being applied in the C-axis rotation direction, improving production efficiency.

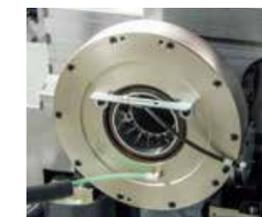
C-axis clamp force
M300X3: 400Nm
M200X3: 345Nm



A-axis clamp (optional)

The A-axis clamp enables the machine to demonstrate high machining capabilities even in high-load machining. In addition, stable rotation and less vibration during lathe turning have been achieved, improving machining accuracy.

A-axis clamp force
M300X3: 500Nm
M200X3: 400Nm



A-axis clamp (M300X3)



Improves machining accuracy and capabilities when the A-axis is tilted or machining is performed in a full machining range.



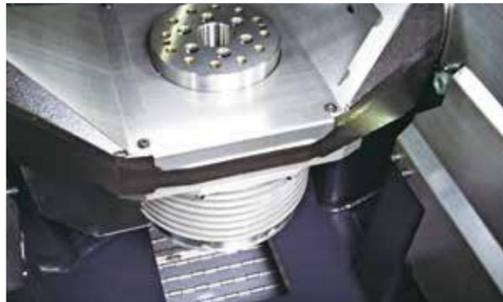
Vibration caused by imbalance of the jig or workpiece during C-axis rotation has been minimized, achieving stable rotation to prevent the decrease in machining accuracy.

Reliability

Chip discharge performance and handling capability have been improved along with the expansion of the machine area. In addition, the machine is equipped with functions to improve reliability, such as chip shower and air-assisted tool washing.

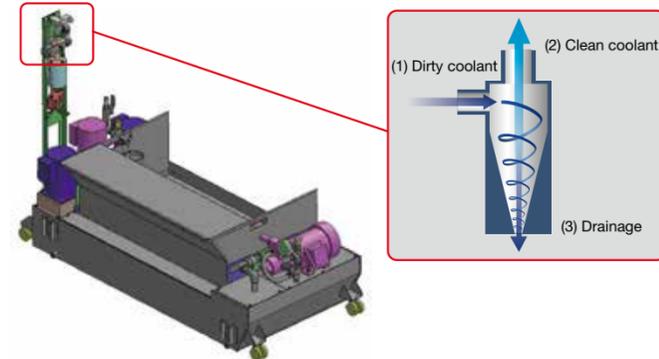
Center trough structure

Chip discharge performance has been improved by the tilted base and the center trough structure.



Tank with cyclone filter (special option for CTS)

Coolant is returned to a clean tank through a tank with a cyclone filter with fine chips removed. This reduces the filter change frequency and extends the service life of the pump.



Operability

The machine is equipped with our original "CNC-C00 Series" controller, created through machine/controller integrated development.

Equipped with tool monitoring functions

ATC monitoring

The presence of a spindle tool is detected without using a sensor.

Machining load monitoring function

The machining load applied to the spindle is monitored to detect an abnormality of the tool or machining.

Thread cutting function

Straight thread cutting and tapered-thread cutting are possible.

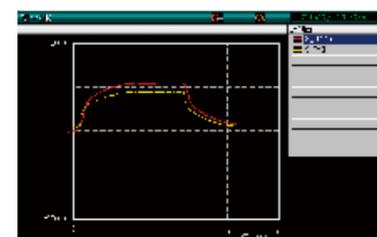


Control box size

Space has been increased for system expansion in case of automation etc.

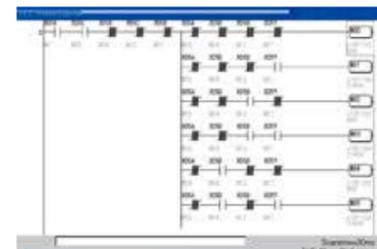
USB interface

In addition to file input/output, various data in the CNC, including waveform data, can be output.



PLC function

Standard equipped with PLC. Input and output points can be expanded to up to 1,024 points each (optional).



Chip conveyor

A two-step structure (hinged plate and scraper) is used, enabling discharge 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 discharge chips. The chute can be separated from the coolant tank, making maintenance easier. *1



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.



Coolant Through Spindle (CTS)

1.5 MPa CTS used for BT spindle. *Please consult your local distributor for use of 3 MPa CTS.



Manual pulse generator

A cable is provided for the manual pulse generator, making setup easier.



Automatic door (motor-driven)

A motor-driven door is used, achieving smooth operation and reducing opening/closing time.



Side cover (transparent board type)

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



Side door (with transparent window)

This makes setup from the side easier. It is possible to check the machining room through the transparent window and operate the manual pulse generator through the side door.



Automatic oil lubricator / Automatic grease lubricator

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



Tool breakage detector (touch type)

A touch switch type tool breakage detector is used.



Rotary joint

A rotary joint with four ports (two hydraulic, one pneumatic, and one common for hydraulic, coolant, and pneumatic) has been prepared, which is attached to the bottom of the turning spindle motor. *2

*1 Chips may not be discharged correctly depending on the shape of chips. When you select the coolant tank with chute, you must also select the chip shower. Please contact your local distributor for details.
*2 The rotary joint must be used with hydraulic oil supplied. If hydraulic oil is not supplied, only conduct indexing operation or remove the rotary joint from the turning spindle motor.

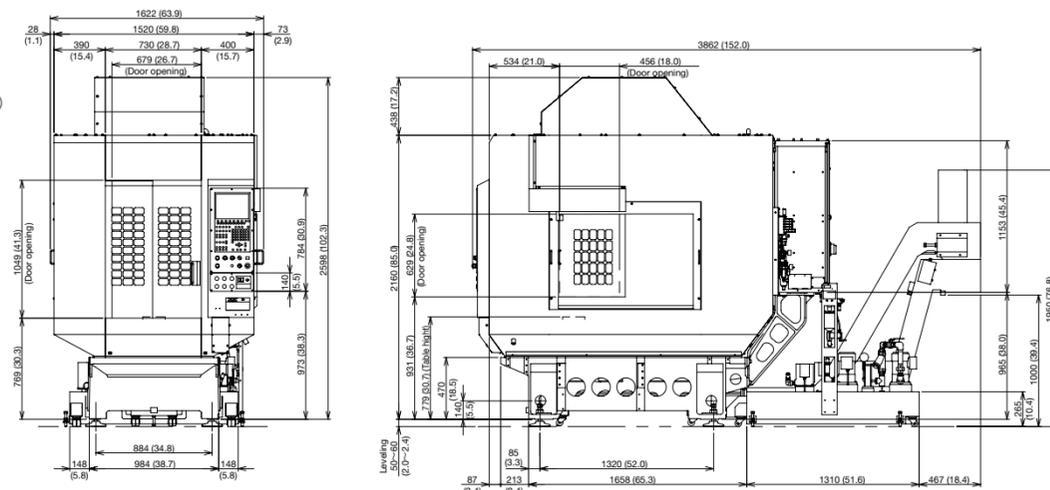
*Depending on the type of coolant, it may have a significant influence on the machine lifecycle. It is recommended to use the coolant which is commercially designated as high lubricity, for example Emulsion type. Especially, the coolant of chemical solution type (ex. Synthetic type) is prohibited to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

Optional Specifications

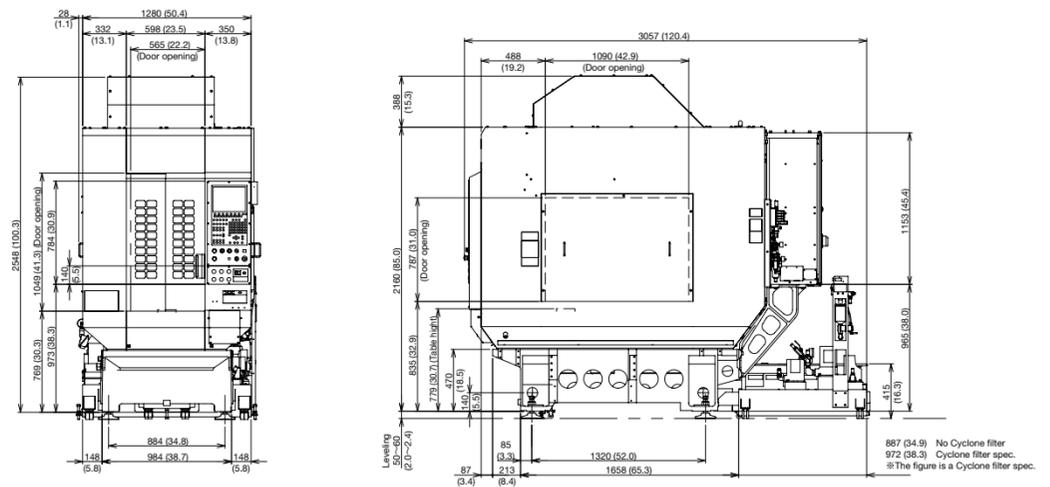
- | | | | | |
|---|--|---|--|---|
| <ul style="list-style-type: none"> Coolant unit <ul style="list-style-type: none"> ① Two-step chip conveyor ② Coolant tank with chute *For ① and ②, standard type or the following options can be selected. <ul style="list-style-type: none"> With chip shower With cyclone filter, chip shower and CTS Coolant Through Spindle (CTS) Tool washing (air-assisted type) Rotary joint (4P) Tool breakage detector (touch type) | <ul style="list-style-type: none"> Chip shower <ul style="list-style-type: none"> Cleaning gun Jig shower valve unit A-axis clamp Automatic oil lubricator Automatic grease lubricator LED work light (1 or 2 lamps) Indicator light (1, 2, or 3 lamps) Area sensor Automatic door (motor-driven) | <ul style="list-style-type: none"> Specified color Manual pulse generator Spindle override Grip cover Side cover (transparent board type) Side door (with transparent window, right side only) Switch pane (8 holes, 10 holes) RS232C (25 pin) for control box Operation preparation circuit | <ul style="list-style-type: none"> 100V outlet (in control box) Power supply expansion Breaker handle cover Memory expansion (approx. 500 Mbytes) Expansion I/O board (EXIO board) <ul style="list-style-type: none"> ① EXIO board assembly ② Additional EXIO board assembly | <ul style="list-style-type: none"> Fieldbus <ul style="list-style-type: none"> ① CC-Link (remote device station) ② PROFIBUS DP (slave) ③ DeviceNet (slave) PLC programming software (For Windows® XP, Vista, 7, and 8.1) <ul style="list-style-type: none"> Windows® is a trademark or registered trademark of Microsoft Corporation in the United States and/or other countries. *Please contact your Brother dealer for details. |
|---|--|---|--|---|

Outline drawing

●M300X3
(Chip conveyor type)



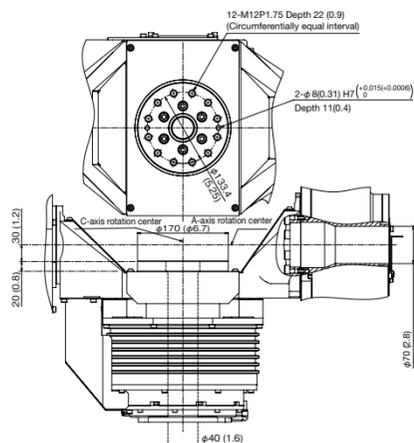
●M200X3
(Chute type)



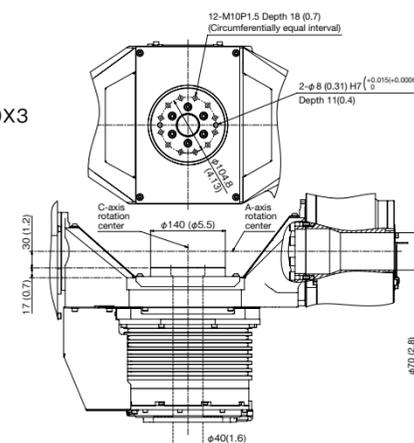
Secure 700 mm (27.6 inch) between machines as maintenance space.

Table details

●M300X3



●M200X3



mm (inch)

Item	M300X3 / M300X3 RD *8	M200X3 / M200X3 RD *8
CNC Unit	CNC-C00	
X axis	300 (11.8) mm (inch)	200 (7.9)
Y axis	440 (17.3) mm (inch)	440 (17.3)
Z axis	305 (12.0) mm (inch)	305 (12.0)
A axis	120 ~ -30 (deg)	120 ~ -30
C axis	360 (deg)	360
Distance between table top and spindle nose end	200 ~ 505 (7.9 ~ 19.9) mm (inch)	150 ~ 455 (5.9 ~ 17.9)
Work area size	φ170 (φ6.7) mm (inch)	φ140 (φ5.5)
Shape of table top	In compliance with table nose No.5 of ISO702-4 (JISB6109-2)	
Max. loading capacity(uniform load)	Table side 75 (165.3) / Tale side 11 (24.3) kg (lbs)	Table side 40 (88.2) / Tale side 11 (24.3)
Max. table load inertia	Table side 0.58 (1982) / Tale side 0.04 (137) kg·m ² (lb·inch ²)	Table side 0.29 (991) / Tale side 0.04 (137)
Spindle speed	10,000min ⁻¹ specifications : 1~10,000 16,000min ⁻¹ specifications (Optional) : 1~16,000	
Speed during tapping	MAX. 6,000 min ⁻¹	
Tapered hole	7/24 tapered No.30	
BT dual contact spindle(BIG-PLUS)	Optional	
Coolant Through Spindle(CTS)	Optional	
Turning spindle	1,500 min ⁻¹	2,000
Max. spindle speed	50 × 50 × 50 (1,969 × 1,969 × 1,969) m/min(inch/min)	
Rapid traverse rate(XYZ-area)	Cutting feed rate mm/min(inch/min)	
Cutting feed rate	X, Y, Z axis : 1 ~ 30,000 (0.04 ~ 1,181) *7	
Indexing feedrate(A and C)	A axis : 50 C axis : 200 min ⁻¹	
Tool shank type	MAS-BT30	
Pull stad type *4	MAS-P30T-2	
Tool storage capacity	22 pcs.	
Max. tool length	200 (7.9) mm (inch)	
Max. tool diameter	80 (3.1) mm (inch)	
Max. tool weight *1	3 (6.6) kg (lbs)	
Tool selection method	Random shortcut method	
*5 Tool To Tool	0.8 sec.	0.8
Chip To Chip	1.6 sec.	1.5
Main spindle motor(10min/continuous) *2	10,000min ⁻¹ specifications : 10.1/7.0 16,000min ⁻¹ specifications (Optional) : 7.4/5.1 kW	
Axis feed motor	X,Y axis : 1.0 Z axis : 1.8 A axis : 1.35 kW	
Turning spindle motor	4.6 kW	
Power supply	AC V±10%, 50/60Hz±1Hz	
Power capacity(continuous)	10,000min ⁻¹ specifications : 9.5 16,000min ⁻¹ specifications (Optional) : 9.5 kVA	
Regular air pressure	0.4~0.6 (recommended value : 0.5MPa) *6 MPa	
Air supply	Required flow 165 L/min	
Height	2,653 (104.4) mm (inch)	2,603 (102.5)
Required floor space	1,520 × 3,862 (59.8 × 152.0) mm (inch)	1,280 × 3,862 (59.8 × 152.0)
Weight	2,880 (6,349) kg (lbs)	2,750 (6,063) [3,050 (6,724) with BV7-870]
Accuracy *3	X, Y, Z axis : 0.006~0.020 (0.00024~0.00079) mm (inch) A, C axis : 28 sec or less	
Repeatability of bidirectional axis positioning(SO230-2:2014)	X, Y, Z axis : Less than 0.004 (0.00016) mm (inch) A, C axis : 16 sec or less	
Standard accessories	Instruction Manual (1 set), anchor bolts (4 pcs.), leveling plates (4 pcs.)	

*1. The maximum 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 the 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 high accuracy mode B is used (When not used, 1 ~ 10,000 mm/min for X/Y axes and 1 ~ 20,000 mm/min for Z axis) *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.

NC unit specifications

CNC model	CNC-C00
Control axes	5 axes (X,Y,Z,A,C)
Positioning	5 axes (X,Y,Z,A,C)
Interpolation	Linear: 4 axes (X, Y, Z, one additional axis) Circular: 2 axes Helical/conical: 3 axes (X,Y,Z)
Least input increment	0.001mm, 0.0001inch, 0.001 deg.
Max. programmable dimension	±9999.999mm, ±999.9999inch
Display	12.1-inch color LCD
Memory capacity	Approx.100 Mbytes (Total capacity of program and data bank)
External communication	USB memory interface, Ethernet, RS232C 1ch
No. of registrable programs	4,000 (Total capacity of program and data bank)
Program format	NC language *Conversation language not available.

*Ethernet is a trademark or registered trademark of XEROX in the United States.

Standard NC functions

<ul style="list-style-type: none"> Absolute / incremental Inch / metric Corner C / Corner R Rotational transformation Synchronized tap Coordinate system setting Dry run Restart Backlash compensation Rapid traverse override Cutting feed override Alarm history (1,000 pieces) Machine log Machine lock Computer remote Built-in PLC Motor insulation resistance measurement Operation log High accuracy mode AIII Tool length measurement Tool life management / spare tool Background editing 	<ul style="list-style-type: none"> Graphic display Subprogram Helical / conical interpolation Tool washing filter with filter clogging detection Automatic power off (energy saving function) Servomotor off standby mode (energy saving function) Chip shower off delay Automatic coolant off (energy saving function) Automatic work light off (energy saving function) Heat expansion compensation systemII (X,Y,Z axes) Tap return function Automatic workpiece measurement *1 Waveform display Operation level External input signal key High accuracy mode BII (look-ahead 40 blocks) Waveform output to memory card 	<ul style="list-style-type: none"> Screen shot Auto notification Inverse time feed Spindle load monitoring function ATC monitoring function Expanded workpiece coordinate system Scaling Mirror image Menu programming Programmable data input Tool length compensation Cutter compensation Macro function Local coordinate system One-way positioning Operation in tape mode (Turning function) <ul style="list-style-type: none"> Constant peripheral speed control Feed per revolution control Tool position compensation XYZ Nose R compensation Thread cutting function
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Optional NC functions

<ul style="list-style-type: none"> Memory expansion (Approx. 500 Mbytes) High-speed processing *2 Rotary fixture offset Involute interpolation 	<ul style="list-style-type: none"> High accuracy mode BII (look-ahead 200 blocks, smooth path offset) Submicron command *3 	<ul style="list-style-type: none"> Feature coordinate setting function Spindle override Interrupt type macro
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*1. Measuring instrument needs to be prepared by users. *2. Minute block processing time can be changed.

*3. When the submicron command is used, changing to the conversation program is disabled.