

S1000X1

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
Hoechst 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)80-6405-7999

China

BROTHER MACHINERY (SHANGHAI) LTD.
(MACHINE TOOLS DIV.) SHANGHAI TECHNICAL CENTER
Room B, 3/F., No.567, 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 INTERNATIONAL 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,
Queretaro, 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
Level 20, Tower C, Building No 5, DLF Epitome, DLF Cyber City Phase III,
Gurugram - 122002 Haryana - India
PHONE:(91)80-6405-7999

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.

- For safe use of our machines, please read the instruction manual and safety manual before commencing operation. When using oil-based coolant or processing workpieces made of materials (e.g. magnesium, resin) that may be ignited, take adequate safety measures to prevent fire. Please consult your local distributor if you have any questions.
- Leave 700 mm between machines as a maintenance space.
- When exporting our machine together with additional 1-axis rotary table or compound rotary table (including case that a rotary table is scheduled to be installed overseas), 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 case that 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, the procedure to activate the axis of 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 "non-white countries (excluding some countries and regions)", it is not possible to install a compound rotary table separately overseas after exporting the machine. Please make sure to obtain the export license of the machine together with compound rotary table before shipment.

Specifications may be subject to change without any notice.

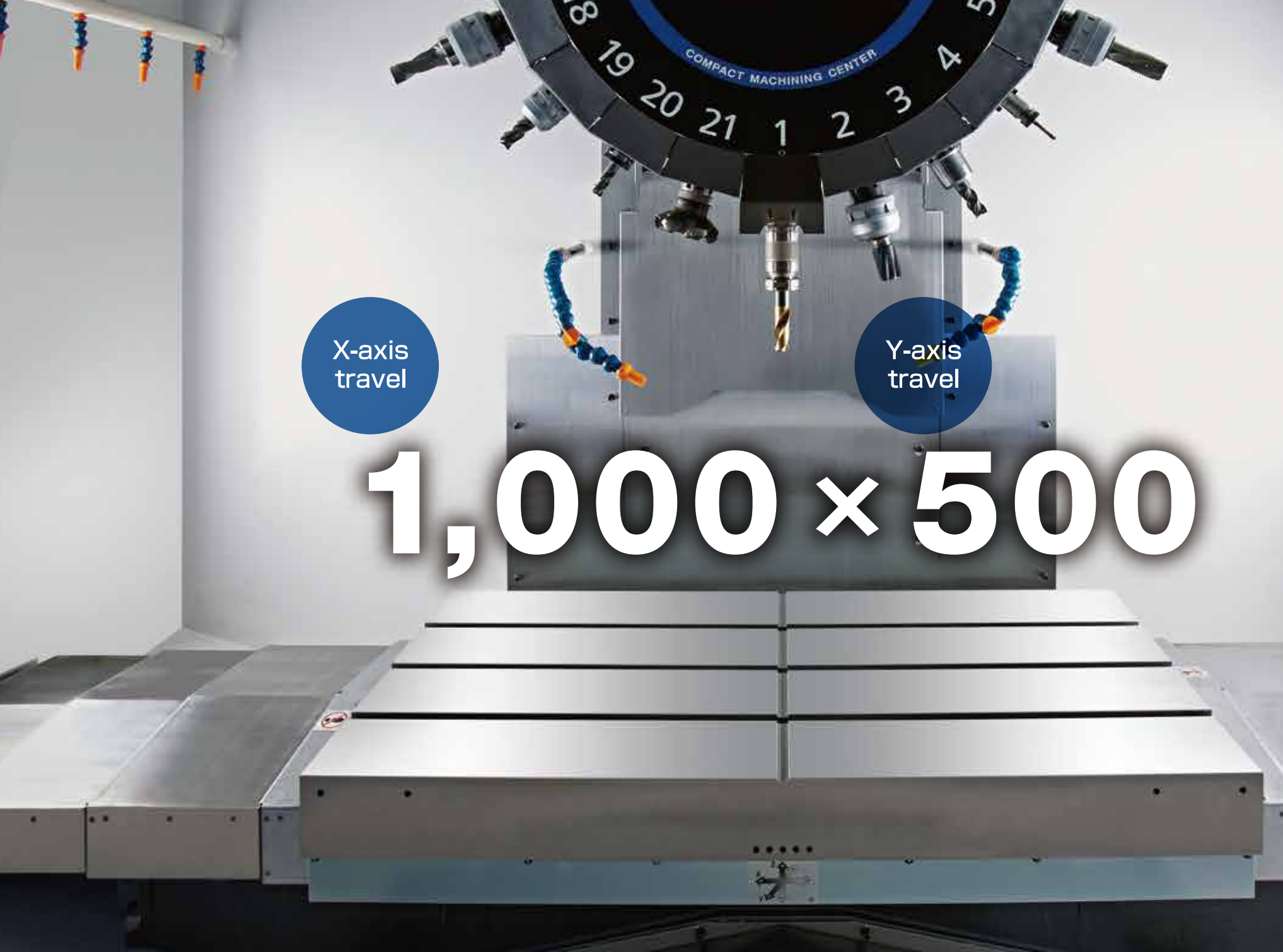


BROTHER INDUSTRIES, LTD.
Machinery Business Division

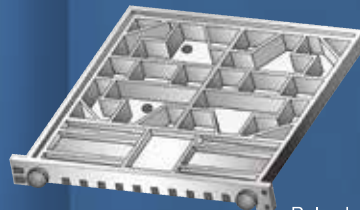
1-5, Kitajizoyama, Noda-cho, Kariya-shi,
Aichi-ken 448-0803, Japan
PHONE: 81-566-95-0075
FAX : 81-566-25-3721

<http://www.brother.com>

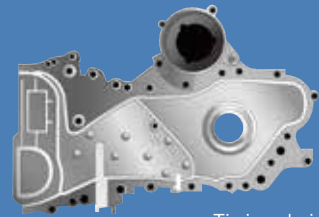




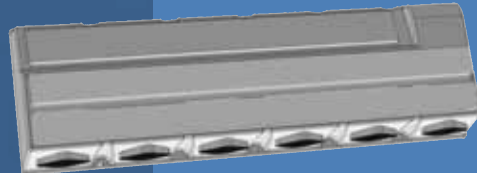
Basic specifications	Max. spindle speed (min ⁻¹)	10,000 10,000 high-torque (optional) 16,000 (optional)
Travels (mm)		X 1,000 Y 500 Z 300
Tool storage capacity (pcs.)		14 / 21
Rapid traverse rate (m/min)		X / Y / Z 50 / 50 / 56
Required floor space (mm)		2,410 × 2,442
BT dual contact spindle (BIG-PLUS)		Optional
Coolant Through Spindle (CTS)		Optional



Relay box



Timing chain cover



Cylinder head cover

Expanding coverage of #30 machine

"Machining larger workpieces using #30 machine"

The release of the S1000X1 machining center sees an override in the conventional machining areas of #30 machines.

Continuing in the spirit of overwhelming high productivity, the machine will launch a challenge to new machining areas, boosting our "Brother also in this process" concept.

SPEEDIO
S1000X1



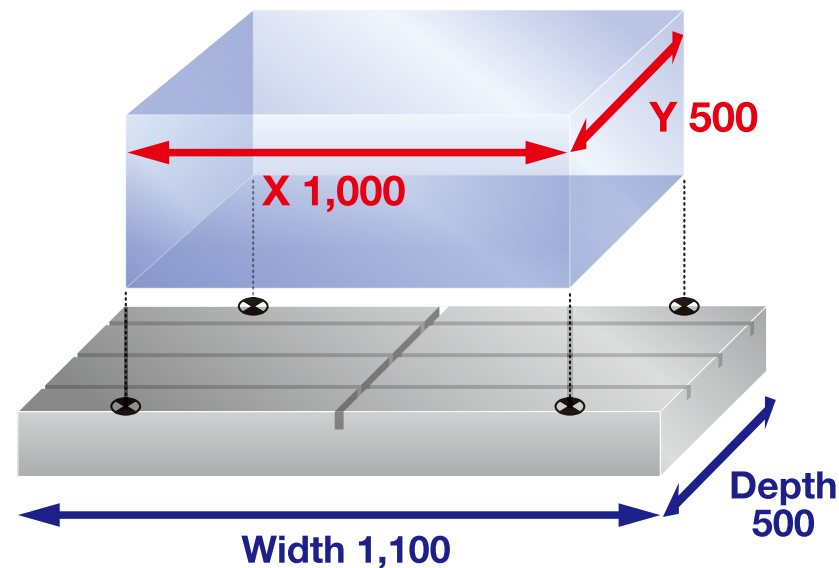
Sufficient travels and table size

Increase in X- and Y-axes travels and expansion of the machining area have enabled large workpiece machining and large jig mounting, which were not possible on conventional #30 machines.

Travels :
X1,000 Y500

Work area size :
X1,100 Y500

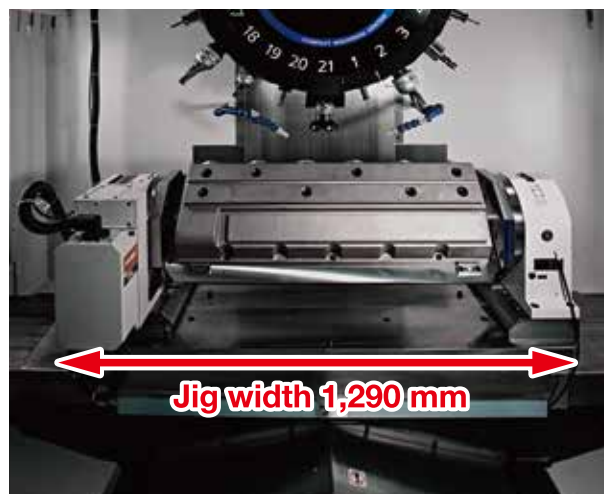
Max. loading capacity :
400kg



Mounting large jigs possible

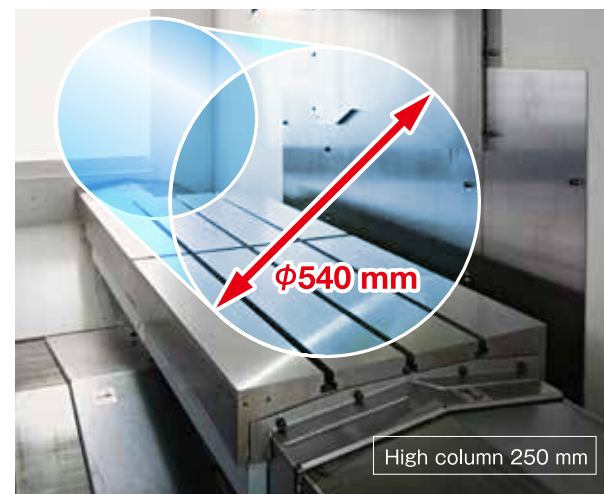
A wider, longer jig area has been secured, enabling mounting of large jigs. 150 mm, 250 mm, and 350 mm high columns (optional) are available to meet customers' needs.

■ Mounting example 1



Rotary table diameter : $\phi 250$
Workpiece size : 830×264×135 (mm)

■ Mounting example 2



Trunnion-type fixture with a turning diameter of $\phi 540$ mm can be mounted.

High-speed and optimal operation control

■ Fast acceleration/deceleration spindle

Using a fast acceleration/deceleration spindle motor enables the spindle to start and stop in an extremely short time.

Spindle start/stop time : **0.15s**

*When using high-torque specs

■ Nonstop ATC

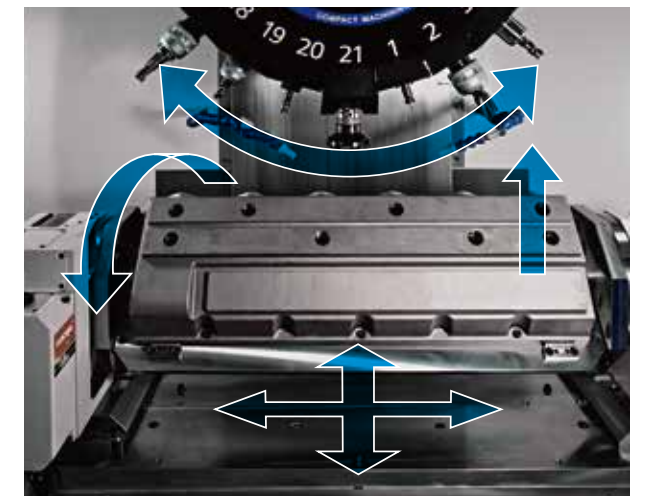
High-speed tool change has been achieved by optimizing and increasing the speed of spindle start/stop, Z-axis up/down, and magazine movement.

Chip — Chip : **1.4s**

Tool — Tool : **0.8s**

■ Simultaneous operation control

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

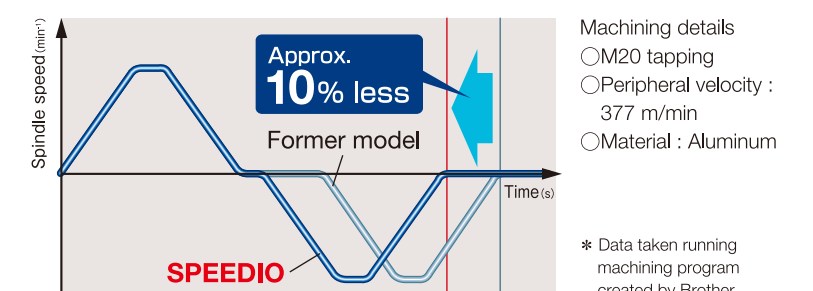


■ Highly-responsive servomotor

Delay in response has been reduced to almost zero by increasing the responsiveness of the servomotor. High-speed synchronized tapping at the fastest level in the world has been achieved.



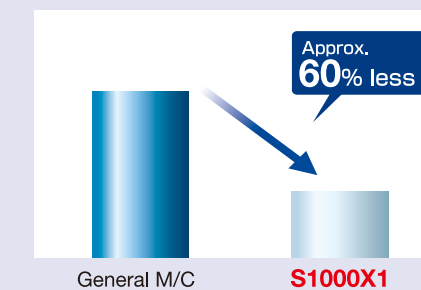
Comparison of tapping cycle time



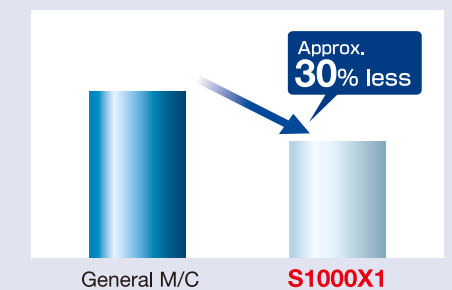
Comparison of cycle time

Compared to a machining center with the same machining area, Brother's original high-speed and optimal operation control results in overwhelming high productivity.

■ Program mainly consisting of drilling and tapping



■ Program mainly consisting of milling and end milling



* Data taken running machining program created by Brother

Highly rigid structure

Backbone parts, such as the base, column, and table, have been specially designed through numerical analysis to secure high rigidity.

Column

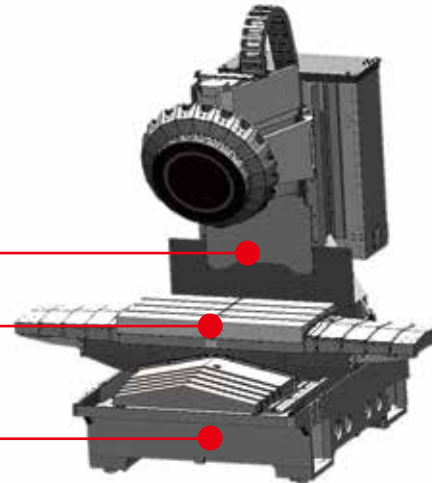
High rigidity achieved through a review of the rib structure and expansion of the column width in response to an increase in the Y-axis travel

Table

Highly rigid to support large jigs, achieved by expanding the guide span and using a structure that suppresses deflection over the entire table

Base

High rigidity achieved through a review of the rib structure and an increase in the distance between base plates



High-power spindle motor

Standard specifications

Torque in the medium- and high-speed range is high, enabling high efficiency machining for aluminum, steel etc.



Grooving using standard specs
Machining details
○Cutting amount : 150 cc/min
○Material : Carbon steel
(for ø16 end mill)

Spindle motor characteristics

Max. torque : 40Nm
(momentary)
Max. output : 18.9kW

High-torque specifications (optional)

Torque in the low-speed range has greatly improved, enabling heavy-duty machining at the highest level among #30 machines.



Large hole drilling using high-torque specs
Machining details
○Hole diameter : ø40 mm
○Material : Carbon steel

Spindle motor characteristics

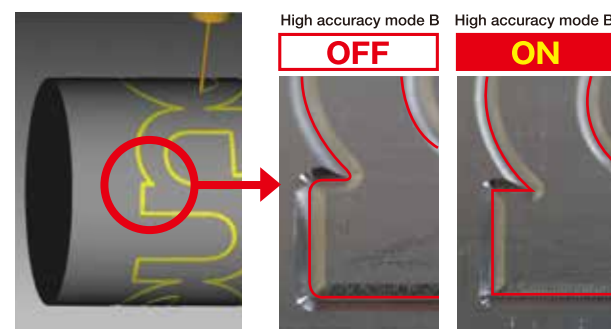
Max. torque : 92Nm
(momentary)
Max. output : 26.2kW

Pursuit of high accuracy

High-speed and highly accurate three-dimensional machining has been achieved by Brother's original three-dimensional machining control equipped with the 200-block look-ahead function and smooth path offset function.

High accuracy mode BI (Standard) : **Look-ahead 30 blocks**

High accuracy mode BII (Optional) : **Look-ahead 200 blocks**



NC Unit

The machine is equipped with our original NC unit created through machine/controller integrated development. Usability has been further improved by expanding operation and maintenance functions and enhancing the system capacity.

Shortcut keys

Equipped with a "shortcut" function so you can quickly open the screen you want to view



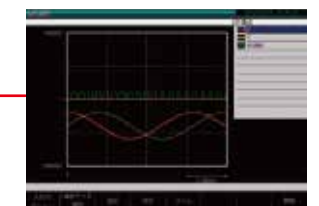
USB interface

In addition to high-speed file transfer, programs in the USB memory can be run directly or data, such as data measured by the touch probe, can be output.



Machining support functions

Equipped with machining support functions, such as torque waveform display, high accuracy mode, and automatic heat expansion compensation.



System capacity

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



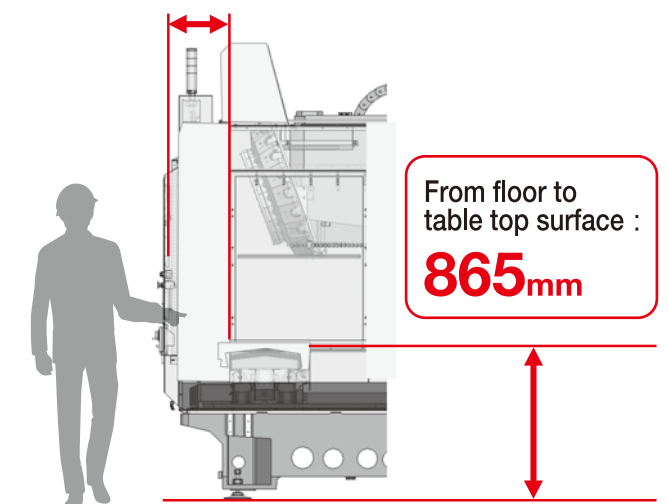
Accessibility

Interlocking double doors are used. This provides a wider door opening width, improving workability.

Door opening width : **1,150mm**

The best table position has been secured so that the operator can perform setup change comfortably.

From front of machine to front of table : **226mm**



From floor to table top surface : **865mm**

High reliability

Chip discharge performance has been improved along with the expansion of the machining area. In addition, the machine is equipped with a variety of functions, such as air-assisted tool washing, to improve reliability.



■ Chip shower



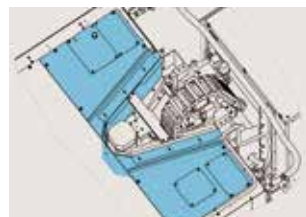
■ Roof shape telescopic cover

Through the installation of two chip shower pumps to double the flow rate, and using roof shape telescopic covers for the X/Y-axes, chips are quickly discharged from the machining area.



■ Air-assisted tool washing (optional)

High discharge pressure prevents chips becoming attached to the holder.



■ Top cover (optional)

Separates the machining area from the machine room.



■ Motor insulation resistance measurement function

Detects motor failure in advance.



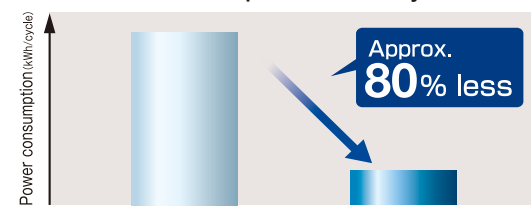
■ Maintenance notice function

Notifies operators of maintenance requirements, such as greasing.

High environmental performance

In addition to low power and air consumption, the machine is equipped with a power regeneration system and a variety of energy saving functions, achieving high environmental performance.

■ Power consumption for one cycle



* Data taken running machining program created by Brother



LED type work light (optional)



Energy saving pump

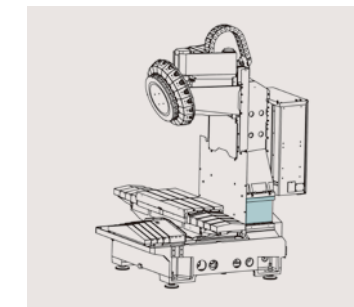
■ The SPEEDIO is an earth-friendly machine equipped with a variety of energy-saving functions.

- **Automatic coolant off** : Turns off the coolant pump when the preset time elapses.
- **Standby mode** : Turns off the servomotor when the machine is not operated for the preset time.
- **Automatic work light off** : Turns off the work light when the preset time elapses.
- **Automatic power off** : Turns off the power at the preset time.



Coolant unit

A large 200L tank is available.
(Photo : Tank with CTS)



High column (150 mm, 250 mm, 350 mm)

150 mm, 250 mm, and 350 mm high columns are available to meet customers' needs.



Manual pulse generator

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



Automatic oil lubricator / Automatic grease lubricator

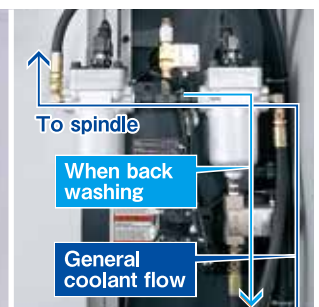
Regularly applies oil or grease to all lubricating points on the three axes. *Manual greasing is required for the standard specification model.



Coolant Through Spindle (CTS)

1.5 MPa CTS is ideal for deep drilling and high-speed machining. The back washing system automatically washes the filter to prevent it from clogging, enabling longer continuous operation without filter replacement.

* Please consult Brother separately for 3 MPa CTS.



Rotary Table T-200



Feature① High Productivity

Combining the roller gear cam with the proper motor provides high acceleration and high rotation speed. In addition, machining can be performed only by the holding torque with motor without using the clamp mechanism depending on the machining load.

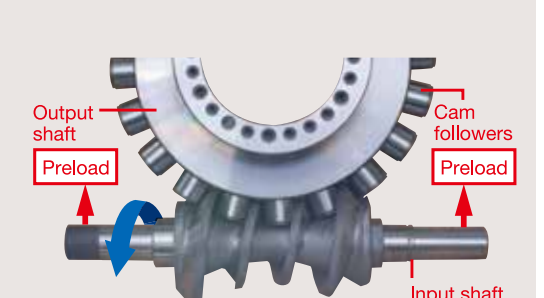
Feature② High Accuracy

Backlash can be eliminated with preloading the cam followers. Even machining with the turning direction in reverse will not adversely affect the machining surface.

Feature③ Maintenance free

There is very little wear because the contact area is a rolling surface that rotates. While the worm gear requires regular adjustment, the roller gear cam does not require any adjustment even in long term use.

■ Roller Gear Cam Mechanism

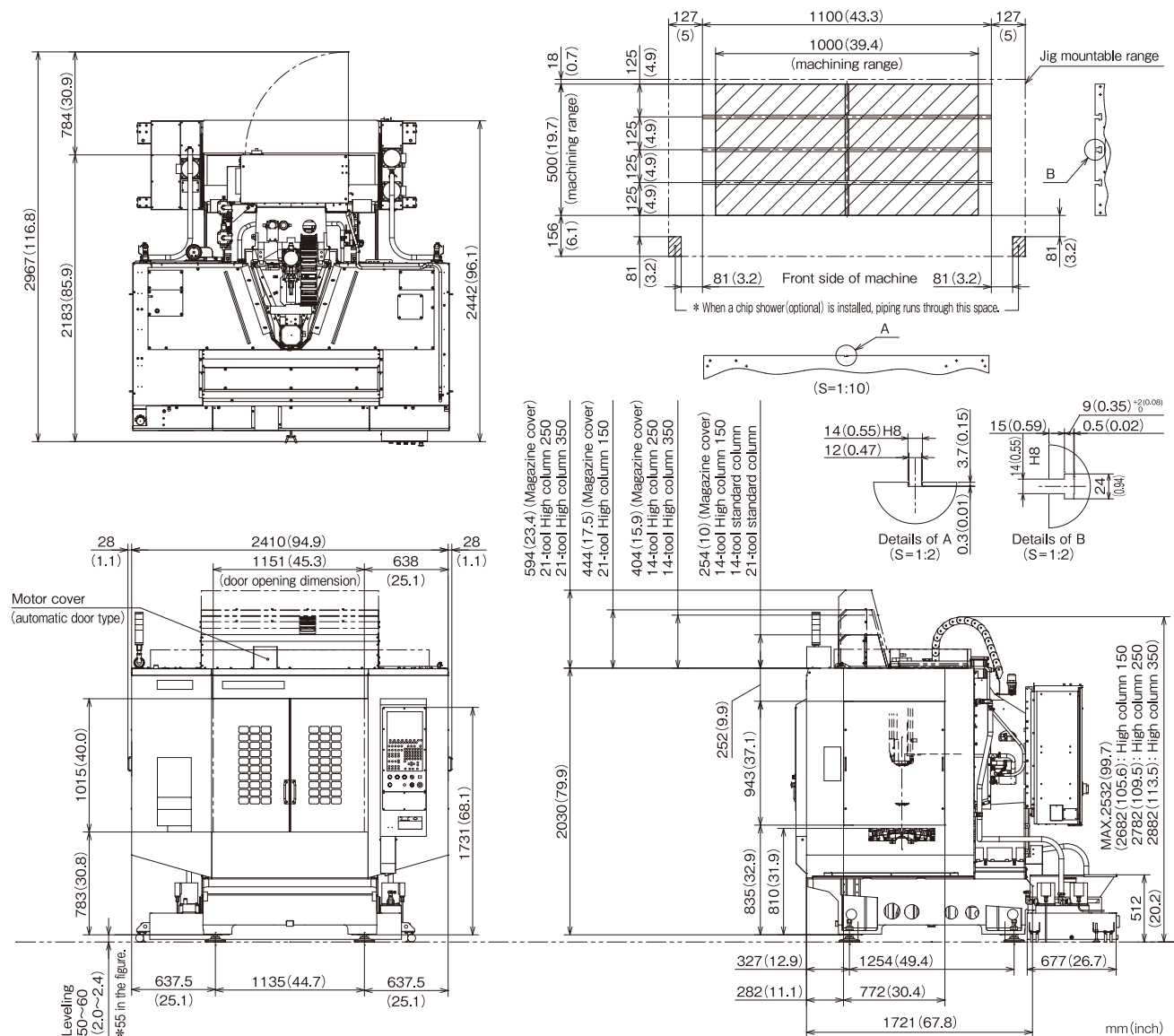


Optional specifications

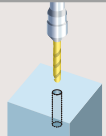
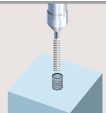
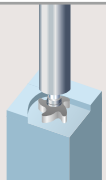
- Coolant unit
 - ①200L
 - With chip shower and valve
 - Pump : 250W x 3
 - ②200L for CTS
 - With chip shower, CTS, and valve
 - Pump : 250W x 3 + 650W
- Coolant Through Spindle (CTS)
- Mesh basket for chips
- Tool washing (air-assisted type)
- Rotary Table T-200
- Tool breakage detector (touch type)
- Chip shower
- Cleaning gun
- Jig shower valve unit
- Back washing system (for CTS)
- Automatic oil lubricator
- Automatic grease lubricator
- LED type work light (1 or 2 lamps)
- Indicator light (1, 2, or 3 lamps)
- Automatic door (motor-driven)
- Area sensor
- Specified color
- Manual pulse generator
- B-axis cord
- Spindle override
- High column (150 mm, 250 mm, 350 mm)
- Grip cover
- Top cover
- Side cover (transparent board type)
- RS232C (25 pin) for control box
- Expansion I/O board (EXIO board)
 - ① EXIO board assembly #2
 - ② Additional EXIO board assembly
- Switch panel (6 holes, 10 holes)
- Memory expansion (approx. 500 Mbytes)
- High accuracy mode BII
 - (look-ahead 200 blocks, smooth path offset)
- Submicron command *1
- Interrupt type macro
- High-speed processing *1
- Rotary fixture offset
- Fieldbus *2
 - ① CC-Link (remote device station)
 - ② PROFIBUS DP (slave)
 - ③ DeviceNet (slave)
- PLC programming software
 - (For Windows® XP, Vista, and 7)
 - 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.

*1 When the submicron command or high-speed processing is selected, changing to the conversation program is disabled. *2 When the fieldbus is selected, the EXIO board assembly cannot be selected.

External Dimensions



Machining capability

		ADC	Cast iron	Carbon steel
Drilling  Tool diameter mm (inch) × Feed mm (inch)/rev	10,000min ⁻¹	D32 (1.26) × 0.2 (0.008)	D28 (1.1) × 0.15 (0.006)	D25 (0.98) × 0.1 (0.004)
	10,000min ⁻¹ high-torque	D40 (1.57) × 0.2 (0.008)	D34 (1.34) × 0.15 (0.006)	D30 (1.18) × 0.15 (0.006)
	16,000min ⁻¹	D30 (1.18) × 0.7 (0.03)	D26 (1.02) × 0.4 (0.02)	D26 (1.02) × 0.25 (0.01)
Tapping  Tool diameter mm (inch) × Pitch mm (inch)	10,000min ⁻¹	M27 × 3.0 (1-8UNC)	M24 × 3.0 (7/8-9UNC)	M16 × 2.0 (5/8-11UNC)
	10,000min ⁻¹ high-torque	M39 × 4.0 (1 1/2-6UNC)	M33 × 3.5 (1 1/4-7UNC)	M27 × 3.0 (1-8UNC)
	16,000min ⁻¹	M22 × 2.5 (7/8-9UNC)	M18 × 2.5 (5/8-11UNC)	M14 × 2.0 (1/2-13UNC)
Facing  Cutting amount cm/min (inch/min): Cutting width mm (inch) × Cutting depth mm (inch) × Feed rate mm/min (inch/min)	10,000min ⁻¹	960 : 100 × 3.2 × 3,000 (58.6 : 3.94 × 0.13 × 118.1)	137 : 40 × 6.0 × 573 (8.4 : 1.57 × 0.24 × 22.6)	100 : 40 × 5.2 × 484 (6.1 : 1.57 × 0.2 × 19.1)
	10,000min ⁻¹ high-torque	1,700 : 100 × 5.7 × 3,000 (102.4 : 3.94 × 0.22 × 118.1)	137 : 40 × 6.0 × 573 (8.4 : 1.57 × 0.24 × 22.6)	100 : 40 × 5.2 × 484 (6.1 : 1.57 × 0.2 × 19.1)
	16,000min ⁻¹	660 : 100 × 2.2 × 3,000 (40.3 : 3.94 × 0.09 × 118.1)	73 : 40 × 3.2 × 573 (4.5 : 1.57 × 0.13 × 22.6)	48 : 40 × 2.5 × 484 (2.9 : 1.57 × 0.1 × 19.1)

* The data is Brother's actual test data.

Item	S1000X1
CNC Unit	CNC-C00
Travels	X axis 1,000 (39.4) Y axis 500 (19.7) Z axis 300 (11.8) Distance between table top and spindle nose end 180~480 (7.1~18.9)
Table	Work area size 1,100 × 500 (43.3 × 19.7) Max. loading capacity (uniform load) 300 [400 #6] (661 [881 #6])
Spindle	Spindle speed 10,000min ⁻¹ specifications : 10~10,000 16,000min ⁻¹ specifications (optional) : 16~16,000 Speed during tapping 10,000min ⁻¹ high-torque specifications (optional) : 10~10,000 Tapered hole MAX. 6,000 BT dual contact system (BIG-PLUS) 7/24 tapered No.30 Coolant Through Spindle (CTS) Optional
Feed rate	Rapid traverse rate (XYZ-area) 50 × 50 × 56 (1,969 × 1,969 × 2,205) Cutting feed rate X, Y, Z axis : 1~30,000 (0.04 ~ 1,181) #7
ATC unit	Tool shank type MAS-BT30 Pull stad type #4 MAS-P30T-2 Tool storage capacity 14 / 21 Max. tool length 250 (9.8) Max. tool diameter 110 (4.3) Max. tool weight #1 3.0 (6.6) / Tool (TOTAL TOOL WEIGHT : 25 (55.1) for 14 tools, 35 (77.2) for 21 tools) Tool selection method Random shortcut method
Tool change time #5	Tool To Tool 0.8 Chip To Chip 1.4 Cut To Cut 1.2
Electric motor	Main spindle motor (10min/continuous) #2 10,000min ⁻¹ specifications : 10.1 / 6.7 16,000min ⁻¹ specifications (optional) : 7.4 / 4.9 Axis feed motor X, Y axis : 1.0 Z axis : 2.0
Power source	Power supply AC V±10%, 50/60Hz±1Hz Power capacity (continuous) 10,000min ⁻¹ specifications : 9.5 16,000min ⁻¹ specifications (optional) : 9.5 Air supply Regular air pressure 0.4~0.6 (recommended value: 0.5MPa #8) Required flow 45
Machining dimensions	Height 2,532 (99.7) Required floor space [with control unit door open] 2,410×2442 [2,692] (94.9×96.1 [106.0]) Weight 3,300 (7,275)
Accuracy #3	Accuracy of bidirectional axis positioning (ISO230-2:2006) 0.006~0.020 (0.00024 ~ 0.00079) Repeatability of bidirectional axis positioning (ISO230-2:2006) Less than 0.004 (0.00016)
Front door	2doors
Standard accessories	Instruction Manual (1 set), anchor bolts (4 pcs.), leveling bolts (4 pcs.), machine cover (manual door)

*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. Acceleration must be adjusted for X and Y axes. *7. When using high accuracy mode B. (Non high accuracy mode B) X,Y axis : 1~10,000mm/min. Z axis : 1~20,000mm/min. *8. 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.

NC unit specifications	Standard NC functions
CNC model CNC-C00	
Control axes 5 axes (X,Y,Z, two additional axes)	
Positioning 5 axes (X,Y,Z,A,B)	
Simultaneously controlled axes Linear: 4 axes (X,Y,Z one additional axis)	
Interpolation 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 (optional)	
No. of registrable programs 4,000 (Total capacity of program and data bank)	
Program format NC language, conversation (changed by parameter), conversation from conversation program to NC language program available	

- 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)
- Status 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

- 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)
- Machine lock
- Heat expansion compensation system II (X,Y,Z axes)
- Tap return function
- Automatic workpiece measurement #1
- Waveform display
- Operation level
- External input signal key
- High accuracy mode BI (look-ahead 30blocks)

- (NC) ● Expanded workpiece coordinate system
- Scaling
- Mirror image
- Menu programming
- Program compensation
- Tool length compensation
- Cutter compensation
- Macro function
- Local coordinate system
- One-way positioning
- Operation in tape mode

- (Conversation) ● Operation program
- Schedule program
- Automatic tool selection
- Automatic cutting condition setting
- Automatic tool length compensation setting
- Automatic cutter compensation setting
- Automatic calculation of unknown number input
- Machining order control

* Number of "control axes" and/or "simultaneously controlled axes" are the maximum number of axes, which will differ depending on the destination country and the machine specifications.
* Ethernet is a trademark or registered trademark of XEROX in the United States.
*1 Measuring instrument needs to be prepared by users.
*2 When the submicron command is used, changing to the conversation program is disabled.
*3 Minute block processing time can be changed. As there are some restrictions, please contact your local distributor for details.
*Functions listed under (NC) and (Conversation) are available only for NC programs and conversation programs respectively.

Optional NC functions

- Memory expansion (Approx. 500 Mbytes)
- High accuracy mode BII (look-ahead 200 blocks, smooth path offset)
- Spindle override
- (NC) ● Submicron command #2
- Interrupt type macro
- Rotary fixture offset
- High-speed processing #3