

R450X1

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
Hoechster 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,
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
Level 20, Tower C, Building No 5, DLF Eptome, 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

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>



SPEEDIO with Pallet Changer

Achievement of high productivity in our quest for “Wasted Time = Zero”

New 22-tool magazine

Promotes process integration by using this with a 2-face pallet changer

Jig area enlargement

Improves applicability in response to broader application

New NC controller

Enhances usability through machine/controller integrated development

Quest for “Wasted Time = Zero”

A new model that is standard equipped with a pallet changer has been added to the SPEEDIO series that achieve overwhelming productivity.

The R450X1 is equipped with the “QT table”, Brother's original high-speed 2-face pallet changer that has been installed on over 15,000 units.

The “new 22-tool magazine” is also available, best suited for column traverse machines. The R450X1 will contribute to further improvement of production efficiency in our quest for “Wasted Time = Zero”.



***SPEEDIO* R450X1**

Max. spindle speed (min ⁻¹)	10,000 / 16,000 (optional) 10,000 high torque (optional)
Stroke of each axis (mm)	X 450 Y 320 Z 305
Tool storage capacity (pcs.)	14 / 22
Rapid traverse rate (m/min)	X / Y / Z 50 / 50 / 50
Required floor space (mm)	1,400 × 2,654
Coolant Through Spindle (CTS)	Optional
BT dual contact spindle (BIG-PLUS)	Optional
Low-floor table	Optional



Brother's original "QT table" pallet changer



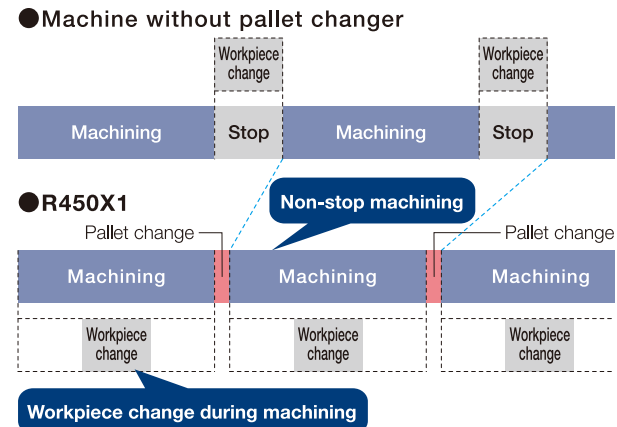
Newly developed magazine that promotes process integration

Non-stop machining

The QT(Quick Turn) table is Brother's original turn table type high-speed 2-face pallet changer. High-speed pallet change is enabled by avoiding lift-up operation while achieving high reliability through a sealed structure. Workpieces on one pallet can be changed while machining workpieces on the other pallet. Therefore, waste in workpiece change time is eliminated, enabling nonstop machining.

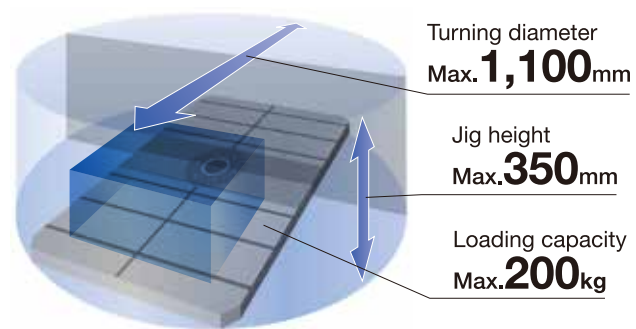
Pallet change time **2.9s**

* When table loading on one face is 120kg.



Wide jig area

The jig can be mounted on the table even if it extends over the table as long as it is within the turning diameter. The standard jig area is wide, with a 1,020 mm turning diameter and 300 mm jig height, making mounting the index table jig easier. The jig area can be enlarged optionally so that larger jigs can be mounted.



Jig mounting range and loading capacity

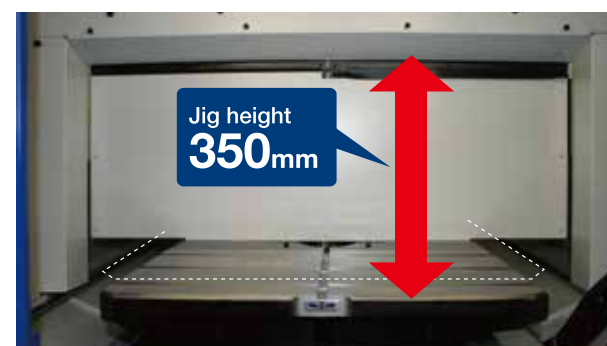
	《 Standard 》	《 Max. 》
Turning diameter	1,020mm	1,100mm ^{(*)1}
Jig height	300mm	350mm ^{(*)2}
Loading capacity	120kg	200kg ^{(*)3}

*1:When the "turning diameter enlargement" option is selected *2:When the low-floor table is selected. *3:The parameter must be changed.

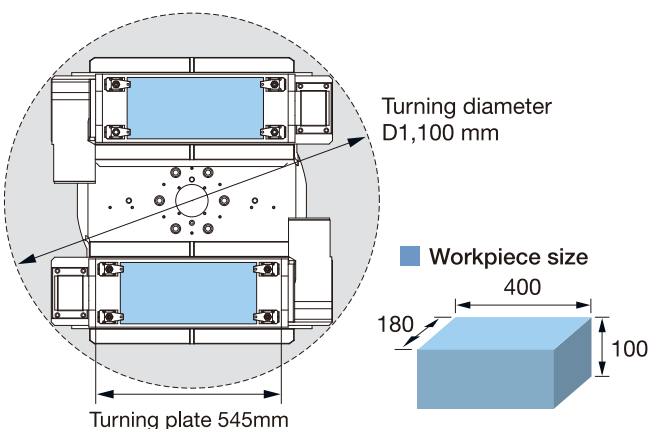
Low-floor table (optional)

The jig height can be increased up to 350 mm.

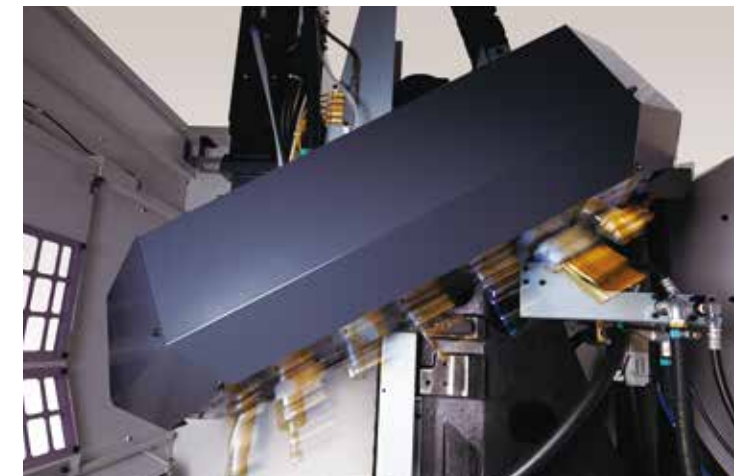
*The distance between the table top and the spindle nose end becomes 250 to 555 mm.



Example of mounting jig Index table jig (table size D170 mm)



New 22-tool magazine



In addition to the conventional 14-tool magazine specifications, the new 22-tool magazine specifications have been added. Using both the 22-tool magazine and 2-face pallet changer promotes process integration, contributing to improvement of production efficiency.

Tool storage capacity **22 tools**

Tool - Tool : **0.9s**

Chip - Chip : **1.7s**



The 22-tool magazine model is standard equipped with a side door and side magazine rotation switch, in consideration of operability.

* These are not provided for the 14-tool magazine model.

14-tool magazine

The 14-tool magazine that features high cost performance can also be selected. Tool change time has been reduced even more than before.

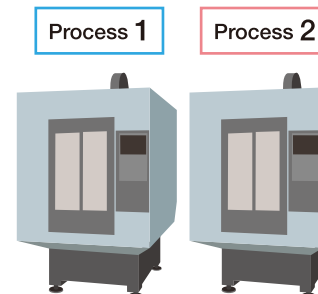
Tool-Tool : **0.8s**

Chip-Chip : **1.6s**

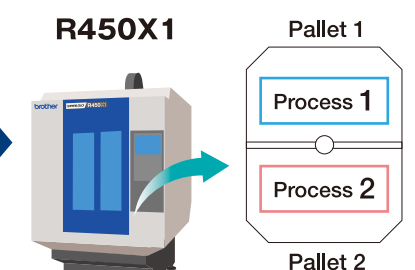


Process integration using 2-face pallet changer and 22-tool magazine

■ Divided into two machines



■ Two processes on one R450X1



One R450X1 can perform two processes, making use of the 2-face pallet changer and the new 22-tool magazine, leading to process integration. This improves the line balance and enables optimal equipment investment.

Brother's original high productivity technology



Usability through machine/controller integrated development

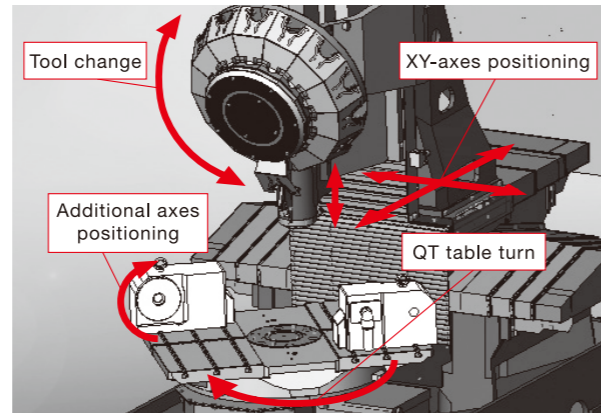
Simultaneous operation

The machine is equipped with a simultaneous operation function where the XY and additional axes are positioned and tools are changed simultaneously when the QT table turns. This does not waste any pallet change time, enabling non-stop machining in our quest for "Wasted time = Zero".

Without simultaneous operation



With simultaneous operation



Spindle start / stop

Using a fast acceleration/deceleration spindle motor achieves quicker starting and stopping of the spindle. Tool change is completed without stopping the Z-axis.

Spindle start / stop time **0.15s**

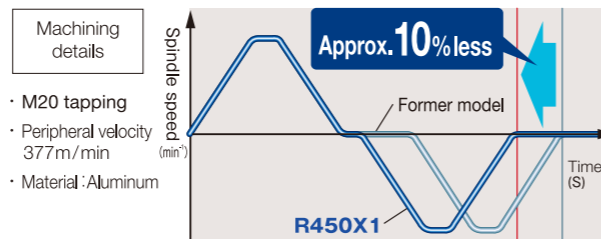
* Data taken using high-torque specifications

Highly-responsive servo motor

Delay in response has been reduced to almost "zero" by increasing the responsiveness of the servo motor. For example, synchronized tapping, the fastest in the world, is completed within much shorter time.



Comparison of tapping cycle time



* Data taken running machining program created by Brother

Reduction in non-cutting time

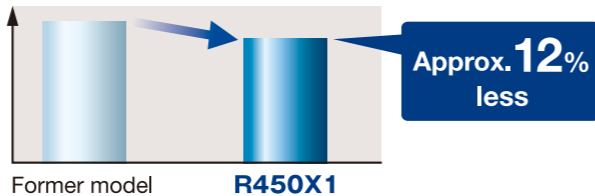
Non-cutting time is further reduced by increasing the responsiveness of the servo motor and eliminating wasted time in a variety of areas.

* Non-cutting time: Period of no cutting, such as during positioning or tool change



Non-cutting time

* Data taken running machining program created by Brother



Next generation CNC controller

Shortcut keys

Open the screen you want to view quickly.



USB interface

Input or output data easily.



Network function

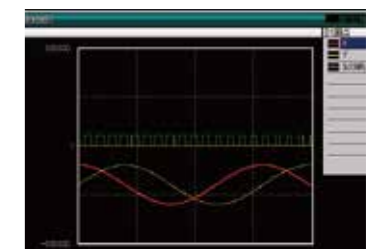
High capacity program data can be transferred via Ethernet at high speed. The standard memory capacity is 100 Mbytes (max. 500 Mbytes).

The machine is equipped with the new "CNC-C00" user-friendly NC controller created through machine/controller integrated development. In addition to shortcut keys, waveform display, operation log and network function, the controller includes functions that make operation of pallet changer machines easier.



Waveform display

Check the torque of the spindle motor etc. as a waveform.



Tap return function

Releases the tool caught in the workpiece due to a power failure during tapping.



PLC function

Standard equipped with PLC. Input and output points can be extended to up to 1024 points each (Optional).

Column movement when changing tools

When changing tools manually, the column can be moved to a position tools can be removed easily.



Outside index rotation switch (Optional)

The index table on the outer pallet can be operated. This makes workpiece removal and attachment easier when workpieces are attached to multiple positions.



High machining capabilities in response to a variety of applications

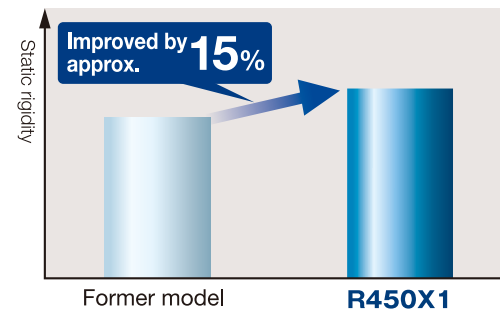


Highly rigid structure

Highly rigid machine structure based on the CAE analysis. The structure of the column and QT table has been reviewed to further improve rigidity.



Comparison of X-axis static rigidity



High-power spindle motor

In addition to the highly rigid structure, a high-power spindle motor is mounted on the machine, providing high machining capabilities.

<p>Medium-and high-speed range enabling high-efficiency machining</p> <p>Grooving using standard specs Cutting amount: 110 cc/min Material: Carbon steel (using D16 end mill)</p>	<p>Low-speed range suitable for heavy-duty machining</p> <p>Large hole drilling using high-torque specs Hole diameter: D40 mm Material: Carbon steel</p>
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Spindle motor characteristic value

Standard specs	
Max. torque (momentary) :	40 Nm
Max. output :	18.9 kW
High-torque specs (optional)	
Max. torque (momentary) :	92 Nm
Max. output :	26.2 kW

Pursuit of high accuracy

Resolution of the encoder has greatly improved and various offset functions have been added. These improvements achieve high accuracy for circular machining and other operations. The machine is also equipped with Brother's original high accuracy mode B that looks ahead up to 200 blocks.

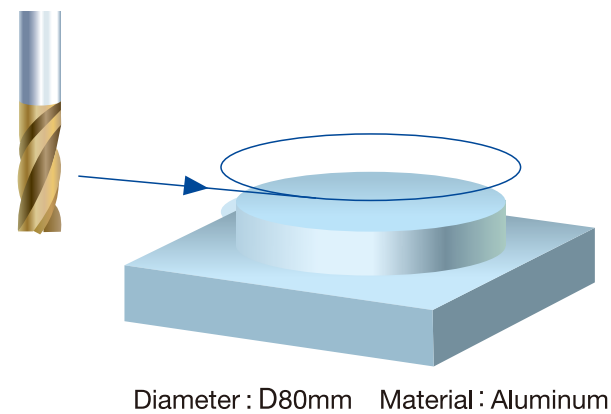
(compared to former model)

Circular machining Roundness : 30% better

* This accuracy may not be obtained under some machining conditions, machine installation conditions etc.

Look-ahead blocks: Max. 200 blocks

* Data taken using optional high accuracy mode BII * 30-block look-ahead is standard.



Examples of target workpieces

Automobile parts	1	2	3	4	
	5	6	7	8	
	9	10	11	12	
	Motorcycle parts	13	14	15	16
		17	18	19	20
		General machinery parts	21	22	23
			24	25	26
	27		28	29	

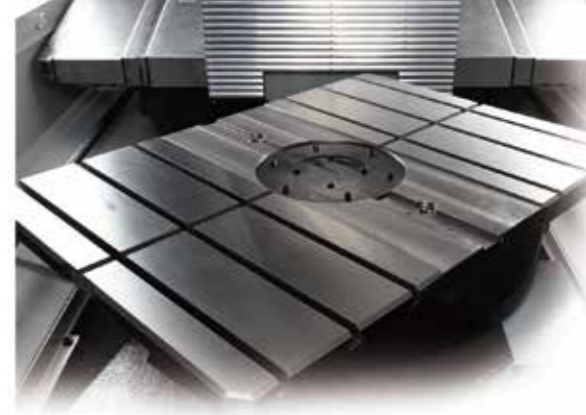
- Bearing support 1
- Flywheel 2
- Balance shaft 3
- Alternator 4
- Starter housing 5
- Air conditioner cover 6
- Air conditioner cam plate 7
- Cylinder block 8
- Wiper housing 9
- Pump housing 10
- Oil pump body 11
- Water pump 12
- Water pump cover 13
- Throttle body 14
- Lower body 15
- Valve housing 16
- Lower ball 17
- Support shaft 18
- Clutch piston 19
- Brake master cylinder 20
- Cylinder head 21
- Crankcase 22
- Crankcase cover 23
- Cylinder 24
- Shift fork 25
- Cam shaft 26
- Crankshaft 27
- Hydraulic transmission joint 28
- Camera parts 29
- Optical element housing 30
- Mobile phone 31
- Camera case 32

Machining capability

Machining	Material	ADC	Cast iron	Carbon steel
Drilling	10,000min ⁻¹	D32(1.26) × 0.2(0.008)	D28(1.1) × 0.15(0.006)	D25(0.98) × 0.1(0.004)
	16,000min ⁻¹	D24(0.94) × 0.2(0.008)	D22(0.87) × 0.15(0.006)	D18(0.71) × 0.1(0.004)
Tool diameter mm (inch) × Feed mm (inch)/rev	10,000min ⁻¹ high-torque	D40(1.57) × 0.2(0.008) D30(1.18) × 0.7(0.03)	D34(1.34) × 0.15(0.006) D26(1.02) × 0.4(0.02)	D30(1.18) × 0.15(0.006) D26(1.02) × 0.25(0.01)
	Tapping	10,000min ⁻¹	M27 × 3.0(1-8UNC)	M24 × 3.0(7/8-9UNC)
16,000min ⁻¹		M22 × 2.5(7/8-9UNC)	M18 × 2.5(5/8-11UNC)	M14 × 2.0(1/2-13UNC)
Tool diameter mm (inch) × Pitch mm (inch)	10,000min ⁻¹ high-torque	M39 × 4.0(1 1/2-6UNC)	M33 × 3.5(1 1/4-7UNC)	M27 × 3.0(1-8UNC)
	Facing	10,000min ⁻¹	960 : 100 × 3.2 × 3,000 (58.6 : 3.94 × 0.13 × 118.1)	128 : 40 × 5.6 × 573 (7.8 : 1.57 × 0.22 × 22.6)
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)
Cutting amount cm ³ /min (inch ³ /min) : Cutting width mm (inch) × Cutting depth mm (inch) × Feed rate mm/min (inch/min)	10,000min ⁻¹ high-torque	1700 : 100 × 5.7 × 3,000 (102.4 : 3.94 × 0.22 × 118.1)	128 : 40 × 5.6 × 573 (7.8 : 1.57 × 0.22 × 22.6)	81 : 40 × 4.2 × 484 (5.0 : 1.57 × 0.17 × 19.1)

*The data is Brother's actual test data.

Environmental performance contributing to global environment



Examples of highly productive machining using QT table

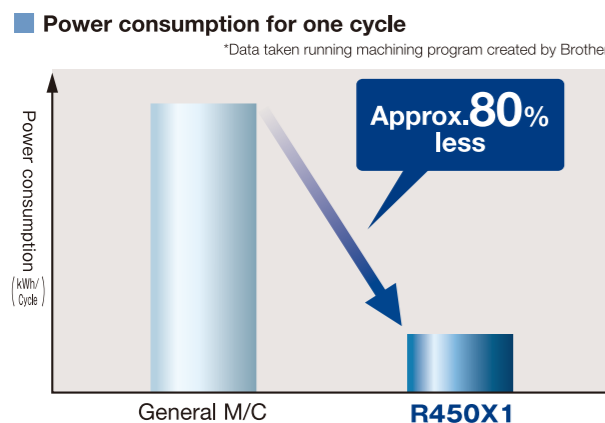
High environmental performance

Power and air consumption has been reduced by installing various energy saving functions, including a power regeneration system, providing high environmental performance.

- Power regeneration system***
*Energy saving system that reuses energy generated when decelerating
- High-efficiency motor**
- Energy saving pump**
- LED work light**
- Various energy saving NC functions**
 - Automatic coolant off**
Turns off the coolant pump when the preset time elapses.
 - Automatic work light off**
Turns off the work light when the preset time elapses.
 - Standby mode**
Turns off the servomotor when the machine is not operated for the preset time.
 - Automatic power off**
Turns off the power at the preset time.

Low power consumption

As various energy saving functions are included, power consumption has been reduced by approximately 15% compared to the former model, and substantially reduced compared to general machining centers.



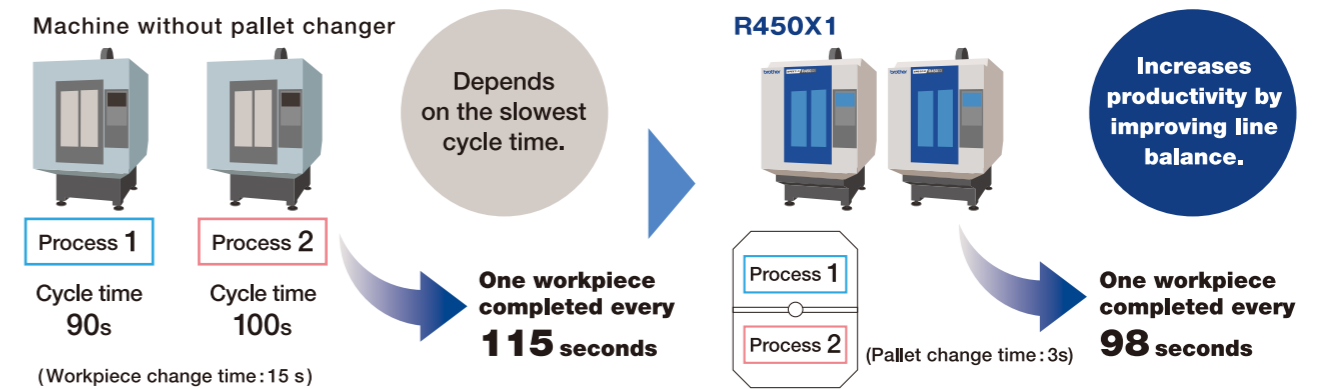
Low air consumption

Low air consumption has been achieved through a spindle covering that minimizes air purge and optimized spindle air blow timing.



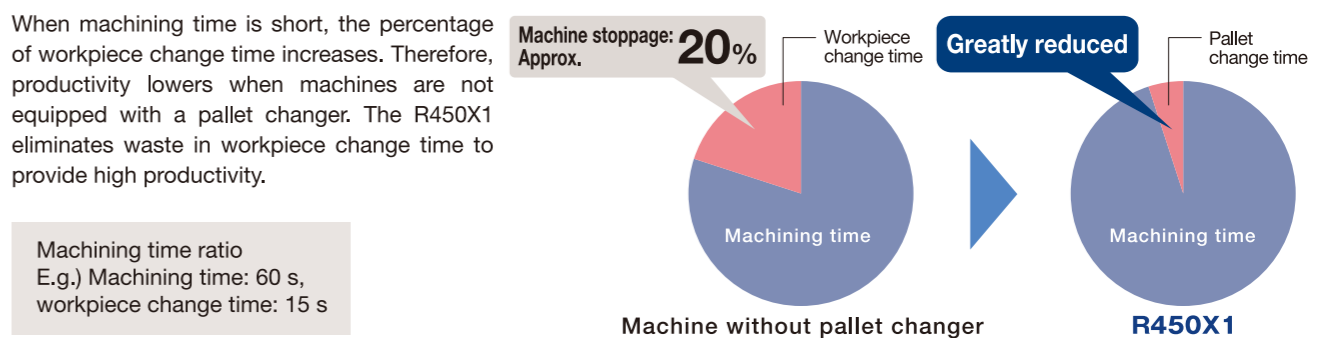
Example 1 Process integration ~ Two processes on one machine ~

Processes divided between two machines can be performed on one machine, making use of the 2-face pallet changer. Process integration improves the line balance and enables optimal equipment investment.



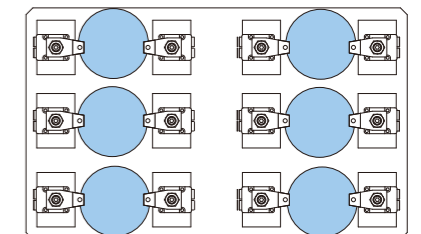
Example 2 When machining time is short ~ Reference machining time: 90 s or shorter ~

When machining time is short, the percentage of workpiece change time increases. Therefore, productivity lowers when machines are not equipped with a pallet changer. The R450X1 eliminates waste in workpiece change time to provide high productivity.



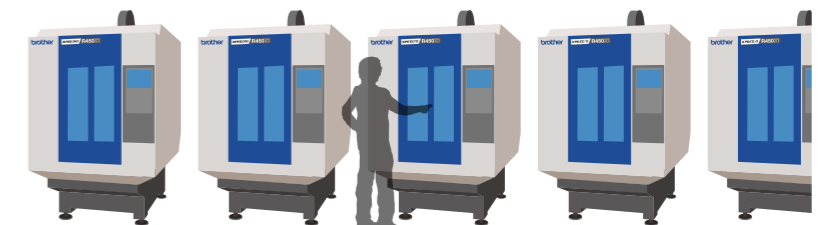
Example 3 When workpiece change time is long ~ Multiple parts machining ~

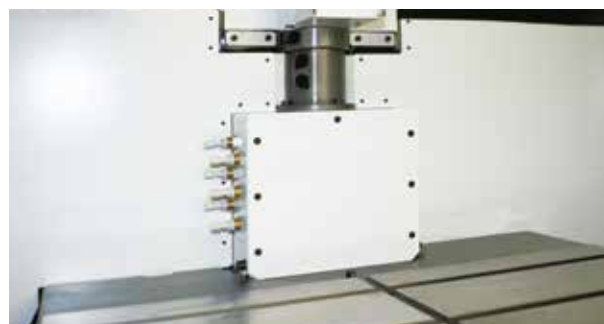
Ample time is taken for workpiece change when the number of workpieces to be changed is large, such as when performing multiple parts machining. Time may also be taken for sufficient jig washing to reduce the influence of chips. Even in these situations, the R450X1 can provide high productivity.



Example 4 Handling multiple machines ~ Promotion of manpower saving ~

As workpieces on one pallet can be changed while machining workpieces on the other pallet, multiple machines can be handled by one operator, contributing to manpower savings.





Hydraulic rotary joint (4P) / Pneumatic relay box (12P)

12 pneumatic ports and 4 hydraulic ports have been prepared so that jigs that use pneumatic or hydraulic pressure can be mounted easily.
* When using the hydraulic rotary joint, the Y-axis travel becomes 290 mm.



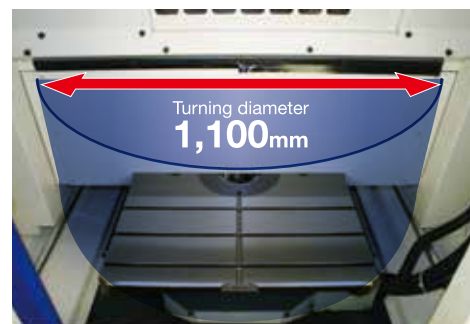
Work light (1 or 2 lamps) / Table light (LED)

LED lamps are used for the work light and table light, providing longer life and saving energy.



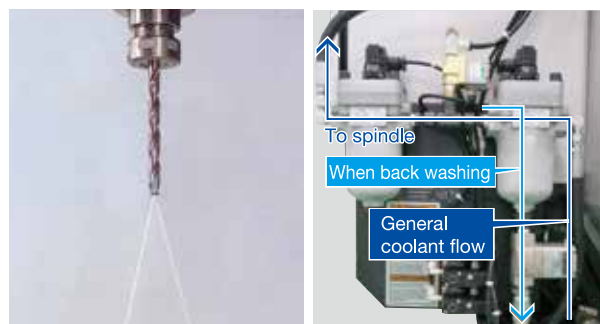
Side door (with transparent window)

This makes setup or tool change from the side easier. It is possible to operate the manual pulse generator through the side door and check the machining room through the lighting window.
* Standardly equipped with 22 tool magazine model.



Turning diameter enlargement (D1, 100mm)

A wider jig area can be secured by enlarging the QT table turning diameter.
* The column moves to a safe position before the QT table turns.



Coolant Through Spindle (CTS)

1.5 Mpa CTS is effective 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 for use of 3 MPa CTS.



Tool washing (air-assisted type)

New air-assisted type tool washing with higher discharge pressure provides higher chip removal capacity. Stable washing power is achieved, without being affected by filter clogging.



Automatic oil lubricator / Automatic grease lubricator

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



Automatic door (motor-driven)

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



Coolant unit

Can be selected from 100L or 150L, depending on the purpose.



Indicator light (1, 2, or 3 lamps)

LED lamps are used. There are no bulbs to burn out, making it completely maintenance free.



Spindle override

Spindle speed can be changed without changing the program.



Side cover (transparent board type)

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



RS232C (25 pin) for control box

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



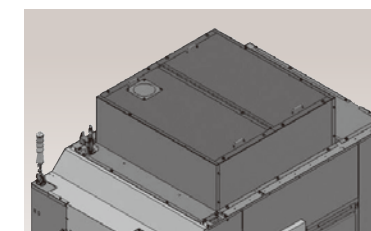
Manual pulse generator

Manual pulse generator with a cable makes operation through the maintenance window easier.



Outer index switch

This switch enables operation of the outer index table.



Top cover

This cover prevents the mist from getting out of the machine. There is also a hole a mist collector.



Cleaning gun

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

Optional Specifications

- Coolant unit
 - ① 100L (with valve and 250W pump)
 - ② 150L (with chip shower, valve and 250W + 400W pumps)
 - ③ 150L (with chip shower, CTS, valve and 250W + 400W + 650W pumps)
- Coolant Through Spindle (CTS) + Back washing system
- Tool washing (air-assisted type)
- Rotary Table T-200
- Tool breakage detector (touch type)
- Hydraulic rotary joint (4P) + Pneumatic relay box (12P)
- Pneumatic relay box (12P)
- Cleaning gun
- Automatic oil lubricator
- Automatic grease lubricator
- LED type work light (1 or 2 lamps)
- Table light
- Indicator light (1, 2, or 3 lamps)
- Automatic door (motor-driven)
- Area sensor
- Specified color
- Manual pulse generator
- B-axis cord
- Spindle override
- Outside index rotation switch
- Turning diameter enlargement (D1, 100mm)
- Top cover
- Side door (with transparent window)
- Side cover (transparent board type)
- Memory expansion (approx. 500 Mbytes)
- RS232C (25 pin) for control box
- Expansion I/O board (EXIO board)
 - ① EXIO board assembly
 - ② Additional EXIO board assembly
- High accuracy mode B II (look-ahead 200 blocks, smooth path offset)
- Submicron command
- Interrupt type macro
- Switch panel (6 holes, 10 holes)
- Fieldbus
 - ① CC-Link (remote device station)
 - ② PROFIBUS DP (slave)
 - ③ DeviceNet (slave)
- PLC programming software (for Windows XP, Vista, and 7)
- Jig shower valve unit
- Grip cover
- Mesh basket for chips



Tool breakage detector (tough type)

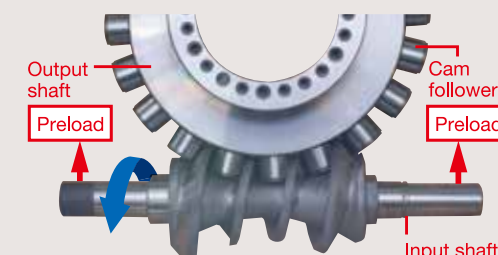
A touch switch type tool breakage detector is used. Installed on each pallet.

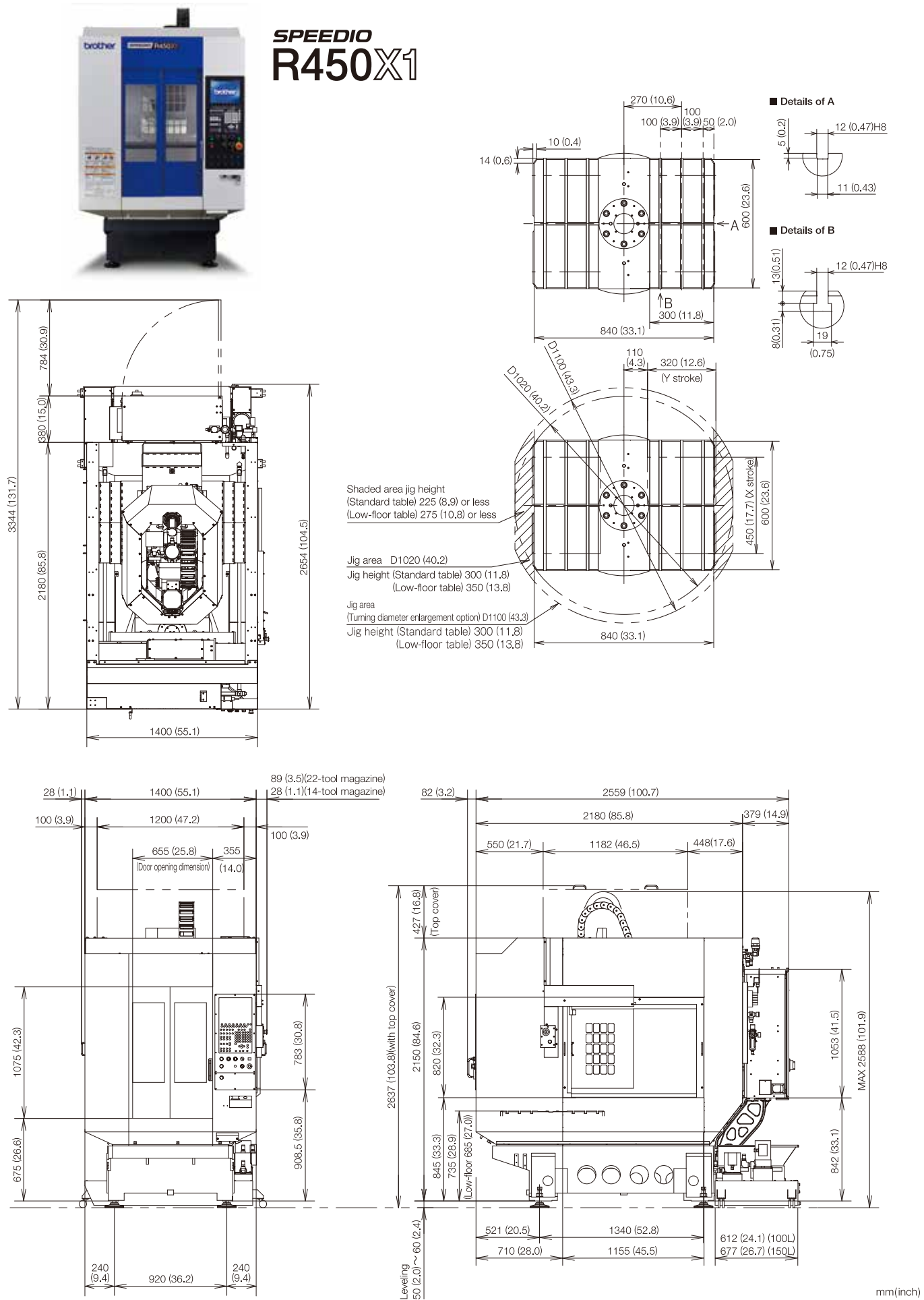
Rotary Table T-200



- 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





Machine specifications

Item	SPEEDIO R450X1	
CNC Unit	CNC-C00	
Travels	X axis	450 (17.7)
	Y axis	320 (12.6) *7
	Z axis	305 (12.0)
	Distance between table top and spindle nose end	200~505 (7.9~19.9) [250~555 (9.8~21.9)] *8
Table	Work area size	One face 600x300 (23.6x11.8)
	Max. loading capacity (uniform load)	One face 120(265) [200 (441)] *6
Spindle	Spindle speed	10,000min ⁻¹ specifications: 10~10,000 16,000min ⁻¹ specifications (optional): 16~16,000 10,000min ⁻¹ high-torque specifications (optional): 10~10,000
	Speed during tapping	MAX. 6,000
	Tapered hole	7/24 tapered No.30
	BT dual contact system (BIG-PLUS)	Optional
Feed rate	Rapid traverse rate (XYZ-area)	50 x 50x50 (1,969 x 1,969 x 1,969)
	Cutting feed rate	X, Y, Z axis : 1~30,000 (0.04~1,181) *9
ATC unit	Tool shank type	MAS-BT30
	Pull stad type *4	MAS-P30T-2
	Tool storage capacity	14/22
	Max. tool length	200 (7.9)
	Max. tool diameter	80 (3.1)
Tool change time *5	Tool selection method	3.0 (6.6) (total tool weight : 25 (55.1) for 14 tools, 40 (88.2) for 22 tools)
	Chip To Tool	Random shortcut method
	Cut To Cut	0.8/0.9 (14 tool / 22 tool)
Electric motor	Main spindle motor (10min / continuous) *2	10,000min ⁻¹ specifications: 10.1 / 6.7 16,000min ⁻¹ specifications: 7.4 / 4.9 10,000min ⁻¹ high-torque specifications : 12.8 / 8.8
	Axis feed motor	X, Y axis : 1.0 Z axis : 1.8
Power source	Power supply	AC V±10% 50/60Hz±1Hz
	Power capacity (continuous)	10,000min ⁻¹ specifications: 9.5 16,000min ⁻¹ specifications: 9.5 10,000min ⁻¹ high-torque specifications : 10.4
	Air supply	Regular air pressure MPa 0.4~0.6 (recommended value: 0.5MPa) *10 Required flow L/min 50
Machining dimensions	Height	2,588 (101.9)
	Required floor space [with control unit door open]	1,400x2,654 [3,344] [55.1x104.5 [131.7]]
	Weight	2,700 (5,954)
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)
Standard accessories	Instruction Manual (1 set), anchor bolts (4 pcs.), leveling bolts (4 pcs.)	

*1. Actual tool weight differs depending on the configuration and center of gravity. The figures shown here are for reference only. *2. Spindle motor output differs depending on the spindle speed. *3. Measured in compliance with ISO standards and Brother standards. Please contact Brother for details. *4. Brother specifications apply to the pull studs for CTS. *5. Measured in compliance with JIS B6336-9 and MAS011-1987. *6/ Can be increased up to 200 kg (one face) by changing the parameter. Please consult us separately. *7/ When using the hydraulic rotary joint, the Y-axis travel becomes 290 mm. *8/ Values when the low-floor table is selected. *9. When using high accuracy mode B. (Non high accuracy mode B. X, Y axis : 1~10,000mm/min. Z axis: 1~20,000mm/min. *10. 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 *11/ When the turning diameter enlargement option is selected.

NC unit specifications

Item	Specifications
CNC model	CNC-C00
Control axes	7axes (X, Y, Z, 4 additional axes)
Simultaneously controlled axes	Positioning 5 axes (X, Y, Z, A, B)
	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
No. of registrable programs	4,000 (Total capacity of program and data bank)
Program format	NC language, conversation (changed by parameter) conversion from conversation program to NC language program available

* 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.

Standard NC functions

- 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)
- Startus log
- Machine lock
- Computer remote
- Built-in PLC
- Motor insulation resistance measurement
- Operation log
- High-accuracy mode All
- Tool length measurement
- Tool life management / spare tool
- Background editing
- Graphic display
- Subprogram
- Helical / conical interpolation
- Standby mode (energy saving function)
- Chip shower off delay
- Tap return function
- Automatic work light off (energy saving function)
- Automatic workpiece measurement *1
- Heat expansion compensation system II (X, Y, Z axes)
- Automatic power off (energy saving function)
- Automatic coolant off (energy saving function)
- Tool washing filter with filter clogging detection
- Waveform display
- Operation level
- External input signal key
- High accuracy mode BI (look-ahead 30blocks)
- 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

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

*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.