

Global Service Sites

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

Brother Technology Center Chicago

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Brother Technology Center Frankfurt

BROTHER INTERNATIONALE INDUSTRIEMASCHINEN GmbH
Hoechst Str.94, 65835 Liederbach, Germany
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Brother Technology Center Bengaluru

BROTHER INTERNATIONAL (INDIA) PVT LTD.
SB-111-112, 1st Stage, 2nd Cross, Peenya Indl Estate, Bengaluru - 560058 Karnataka, India
PHONE:(91)80-43721645

Brother Technology Center Shanghai

BROTHER MACHINERY (SHANGHAI) LTD.
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Brother Technology Center Chongqing

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Nanjing Office

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Brother Technology Center Queretaro

BROTHER INTERNATIONAL DE MÉXICO, S.A. DE C.V.
Calle 1 No.310 Int 15, Zona Industrial Jurica, Parque Industrial Jurica, Queretaro, QRO C.P. 76100 México
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Brother Technology Center Bangkok

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Gurugram Service Center

BROTHER INTERNATIONAL (INDIA) PVT LTD.
CE SERVICED OFFICES PVT. LTD., DLF CYBER HUB, Building No 10, Tower A, Level 1, Phase 3,DLF Cyber City,Gurugram - 122002 Haryana - India
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Brother Technology Center Dongguan

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Ningbo Office

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1005-2 Room, Block C, Hebang building, No 899, Tiantong north road, Ningbo City, Zhejiang Province, P.R.China
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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 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 some countries and regions other than "Group A countries", 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
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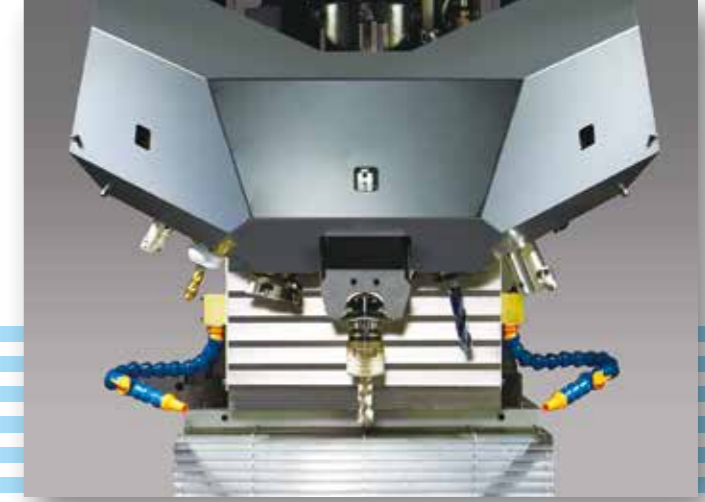
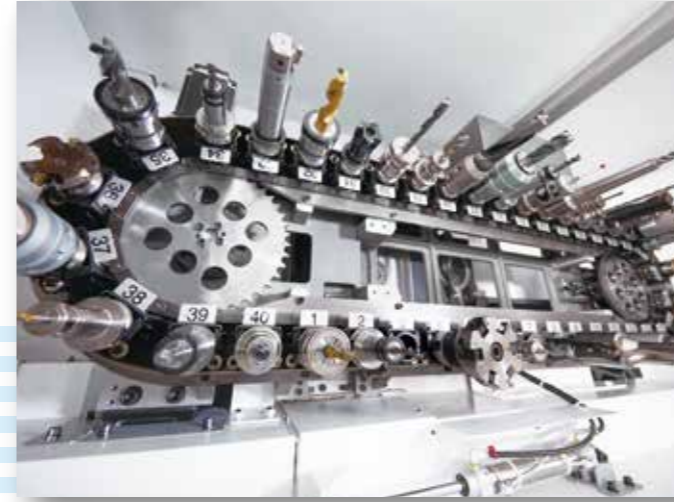
<https://www.brother.com>

Compact Machining Center
SPEEDIO

brother
at your side



SPEEDIO ***with Pallet Changer***



**Enlargement of
Machining Area**

**Quest for
High Performance**

**High Reliability and
Environmental
Performance**

Expanding the World of ***SPEEDIO***

R650X2 is equipped with the "QT table", Brother's original high-speed 2-side pallet changer.

The model demonstrates high productivity, and also provides the largest machining area among "QT table" machines, enabling mounting large jigs.

The release of this new model will further expand the world of the SPEEDIO.

Additionally, R650X2 has a new specification of 40-tool storage capacity, and these new development will further extend the world of SPEEDIO.

R650X2

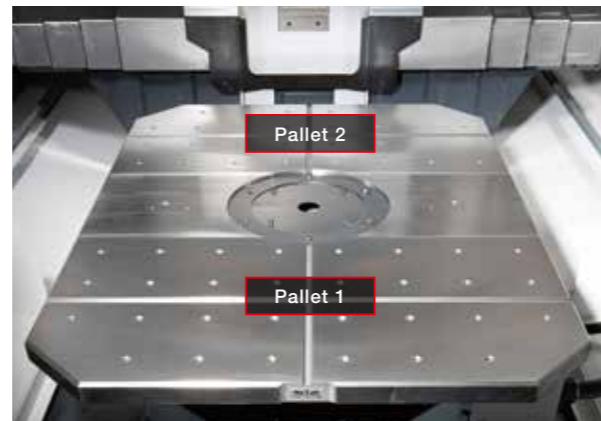
Max. spindle speed (min ⁻¹)	10,000 / 16,000 (optional) 10,000 high torque (optional)
Travel of each axis (mm)	14/22 pcs X650 Y400 Z305 40 pcs X650 Y400 Z435
Tool storage capacity (pcs.)	14/22/40
Rapid traverse rate (m/min)	X/Y/Z 50/50/50
Required floor space (mm)	14/22 pcs 1,897 × 3,448 40 pcs 2,145 × 3,448
Coolant Through Spindle (CTS)	Optional
BT dual contact spindle (BIG-PLUS)	Optional
Low-floor table	Optional



QT table

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 **3.4s**



Expandability

To enable the mounting of much larger jigs, two options are available: a low-floor table option that increases the jig height and a turning diameter enlargement option that increases the turning diameter to 1,300 mm. The loading capacity can also be increased to 300 kg (one face).

Low-floor table specifications



Increase in loading capacity

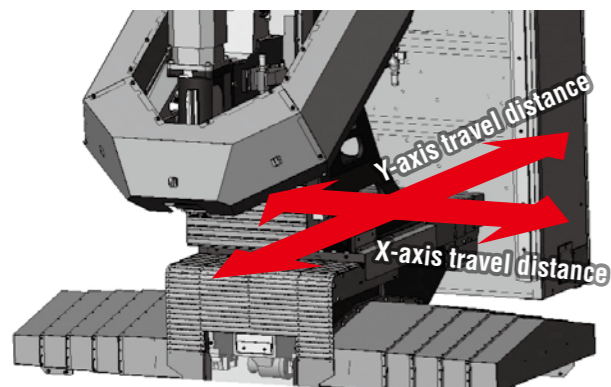
Max. loading capacity (one face)
200kg → **300kg***

* The parameter must be changed.

Machining area

Making use of Brother's original pallet changer technologies, the machine provides sufficient travels and a large jig area, which are not available on conventional #30 machines standard equipped with a pallet changer.

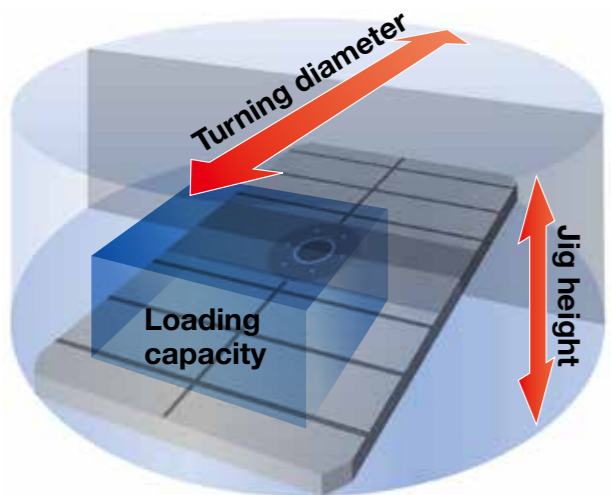
Sufficient travels that enlarge machining range



Provides 650 mm X-axis travel, the largest among QT table machines. Effective for large workpiece machining or multiple parts machining.

X-axis travel distance **650mm**
Y-axis travel distance **400mm**

Jig area that enables mounting of large jigs



The turning diameter and the table size have been increased, enabling the mounting of large jigs. In particular, this makes mounting a trunnion jig using a rotary table easier.

Turning diameter **1,250mm**
Jig height **350mm**
Loading capacity (one face) **200kg**
Work area size (one face) **800×400mm**

40-tool storage capacity

R650X2 can select tool storage capacity 14 pcs, 22 pcs and 40 pcs. This model is suitable to improve the productivity by process integration with a pallet changer.



The separation of the machining area and the magazine room

A shutter is equipped at tool pot in order to separate the machining area and tool magazine room. This structure prevent chip from coming into magazine room.

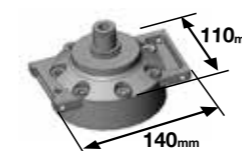


Pot shutter - closed

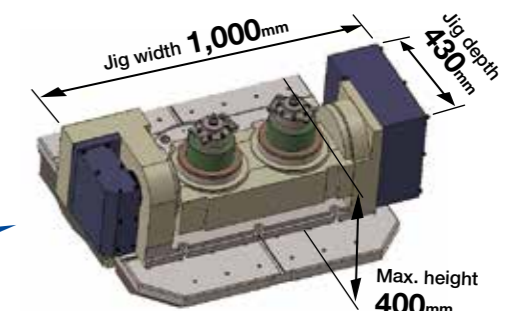
Pot shutter - open

Jig mounting example

- Workpiece : Compressor housing (automobile)
- Machining : Five-face machining using a tilting two-spindle rotary table (When low-floor table is used)



Tilting two-spindle rotary table

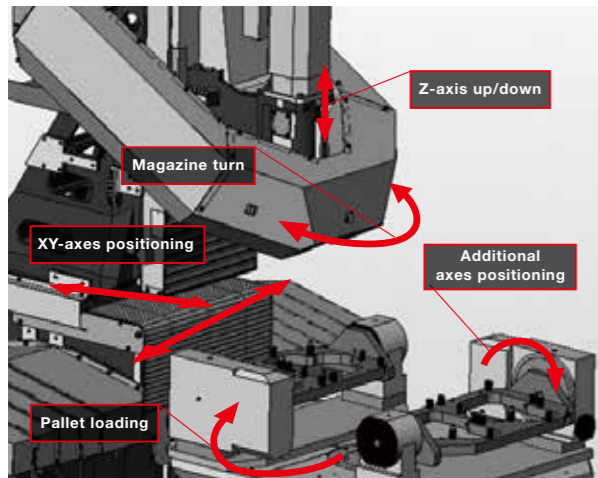




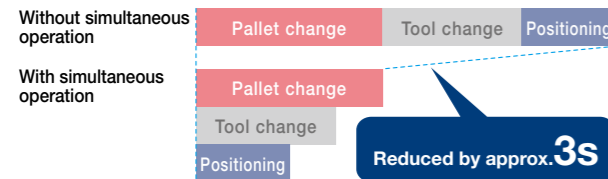
Productivity

Enhanced speed and acceleration, and optimal control with any waste operation and time eliminated, drive machine performance to the fullest, demonstrating high productivity.

Simultaneous operation



The machine is equipped with a simultaneous operation function where the QT table turns and the X/Y- and additional axes are positioned simultaneously when tools are changed. This avoids any waste pallet change time, enabling non-stop machining in our quest for "Wasted time = Zero."



High acceleration spindle

Using a low-inertia spindle motor achieves quicker starting and stopping of the spindle. Tool change is completed without stopping the Z-axis.

Spindle start / stop time **0.14 s**

* Data taken using high-torque specifications.

High-speed tool change

High-speed tool change is achieved by increasing the speed of, and optimizing the control for, spindle start/stop, Z-axis up/down, and magazine operation.

40-tool magazine
Tool - Tool : **0.9 s**
Chip - Chip : **2.6 s**

22-tool magazine
Tool - Tool : **0.8 s**
Chip - Chip : **1.6 s**

14-tool magazine
Tool - Tool : **0.7 s**
Chip - Chip : **1.4 s**

Accessibility

Accessibility and operability from the front or side of the machine is enhanced so that operators can easily perform setup work, such as workpiece change or tool change.

Operation from the front

Wider door opening width is secured to make workpiece change easier.



Operation from the side

The operation panel is placed on the side of the machine to make setup work easier.



The column can be moved to a position where tools can easily be changed.



Machining capabilities

The highly rigid structure and a high-power spindle motor provide high-range machining capabilities from heavy-duty machining to high-speed high-efficiency machining.

Highly rigid structure

High rigidity achieved by reviewing the structure of the column and base through analysis.



High-power spindle motor

Demonstrates high machining capabilities, with high characteristics from low-speed to medium-speed range.

Grooving using standard specs



Machining details
Cutting amount: 110 cc/min
Material: Carbon steel (using D16 end mill)

Large hole drilling using high-torque specs



Machining details
Holediameter: D40 mm
Material: Carbon steel

Spindle motor characteristic value
Max.torque (momentary) **40 Nm**
Max.output **18.9 kW**

Spindle motor characteristic value
Max.torque (momentary) **92 Nm**
Max.output **26.2 kW**

Operability

Equipped with tool monitoring functions

1 ATC monitoring

The presence of a spindle tool is detected without using a sensor. (Only for 14 or 22 magazine specification)

Machining load monitoring

The load on the spindle during machining is monitored, abnormalities in tools and machining can be detected.

2 Waveform output to memory card

Torque waveform data can be output to a memory card (CSV format).

3 Simple setting of high accuracy mode

Parameters used for machining can easily be adjusted.

4 PLC function

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

Control box size

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



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)
	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)
	Tool diameter mm(inch) × Feed mm(inch)/rev			
Tapping	10,000min ⁻¹	M27 × 3.0(1-8UNC)	M24 × 3.0(7/8-9UNC)	M16 × 2.0(5/8-11UNC)
	16,000min ⁻¹	M22 × 2.5(7/8-9UNC)	M18 × 2.5(5/8-11UNC)	M14 × 2.0(1/2-13UNC)
	10,000min ⁻¹ high-torque	M39 × 4.0(1 1/2-6UNC)	M33 × 3.5(1 1/4-7UNC)	M27 × 3.0(1-8UNC)
Tool diameter mm(inch) × Pitch mm(inch)				
Facing	10,000min ⁻¹	960(58.6)	128(7.8)	81(5.0)
	16,000min ⁻¹	660(40.3)	73(4.5)	48(2.9)
	10,000min ⁻¹ high-torque	1700(102.4)	255(15.6)	186(11.4)
Cutting amount cm ³ /min(inch ³ /min)				

*Data obtained from tests conducted by Brother

High Reliability and Environmental Performance

Reliability and Environmental Performance Achieved through Brother's Accumulated Expertise

Reliability

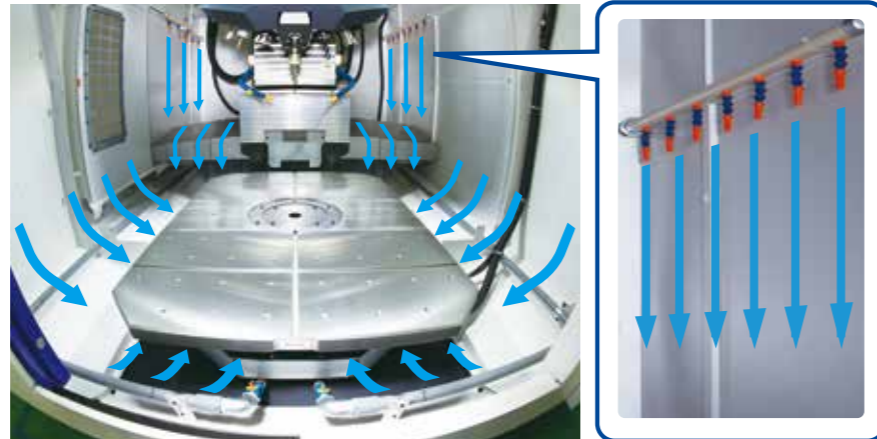
High reliability is achieved by improving chip discharge performance and enhancing maintenance functions, contributing to the improvement of the machine's operating rate.

Chip shower

Two chip shower pumps are installed to greatly increase the flow rate. Piping is added to the top face to discharge chips from the machine quickly.

Air-assisted tool washing (optional)

High discharge pressure prevents chips becoming attached to the holder.



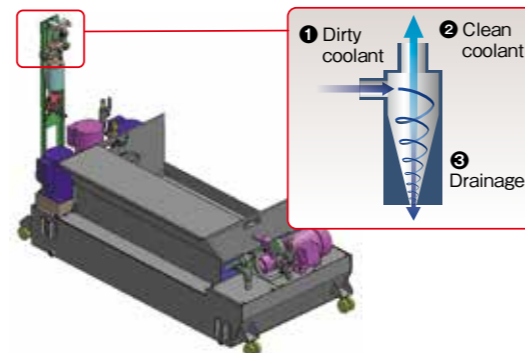
Motor insulation resistance Maintenance notice function

Detects motor failure in advance.



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.



Environmental performance

Various energy saving functions reduce power consumption, achieving high environmental performance.

Power regeneration system

Equipped with a power regeneration system that reuses energy generated when the spindle motor decelerates. Low power consumption is achieved in combination with a highly efficient spindle motor.

Energy saving pump

Energy saving coolant pump reduces power consumption of the coolant unit.



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.

LED type work light

LED type work light is used to achieve low power consumption and long service life.



Highly efficient spindle motor

Highly efficient motor is used for the spindle motor to increase acceleration and save energy.



Optional Specifications



Coolant tank

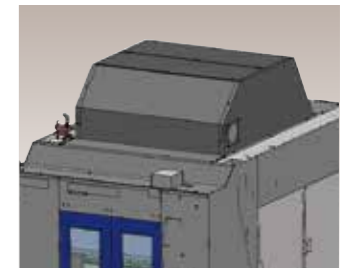
A large 200L or 250L tank (250L only available for 40-tool type) (Photo: 200L tank with CTS)



Coolant Through Spindle (CTS) 1.5MPa

1.5 MPa CTS is ideal for deep drilling and high-speed machining.

*Please consult Brother separately for 3 or 7 MPa CTS.



Top cover

This cover prevents the mist leaking from the top of the machining room. There is also a hole for a mist collector.



Outside rotary table indexing switch

This switch enables operation of the outer index table.



Manual pulse generator

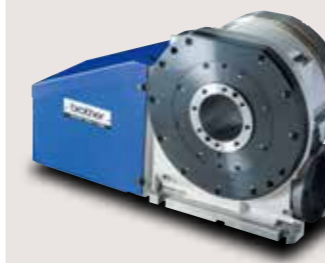
Manual pulse generator with a cable makes operation through the maintenance window easier.



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.

Rotary Table T-200A



Feature 1 High productivity

High acceleration and fast rotation ensure smooth operation even for jigs with a large unbalanced load.

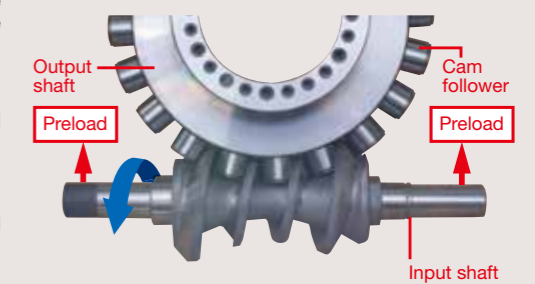
Feature 2 High accuracy

Preload applied between the input shaft and the output shaft achieves zero-backlash.

Feature 3 Extended service life

As very little abrasion on the input shaft and output shaft occurs due to rolling contact, adjustment is unnecessary for long periods.

Roller Gear Cam Mechanism

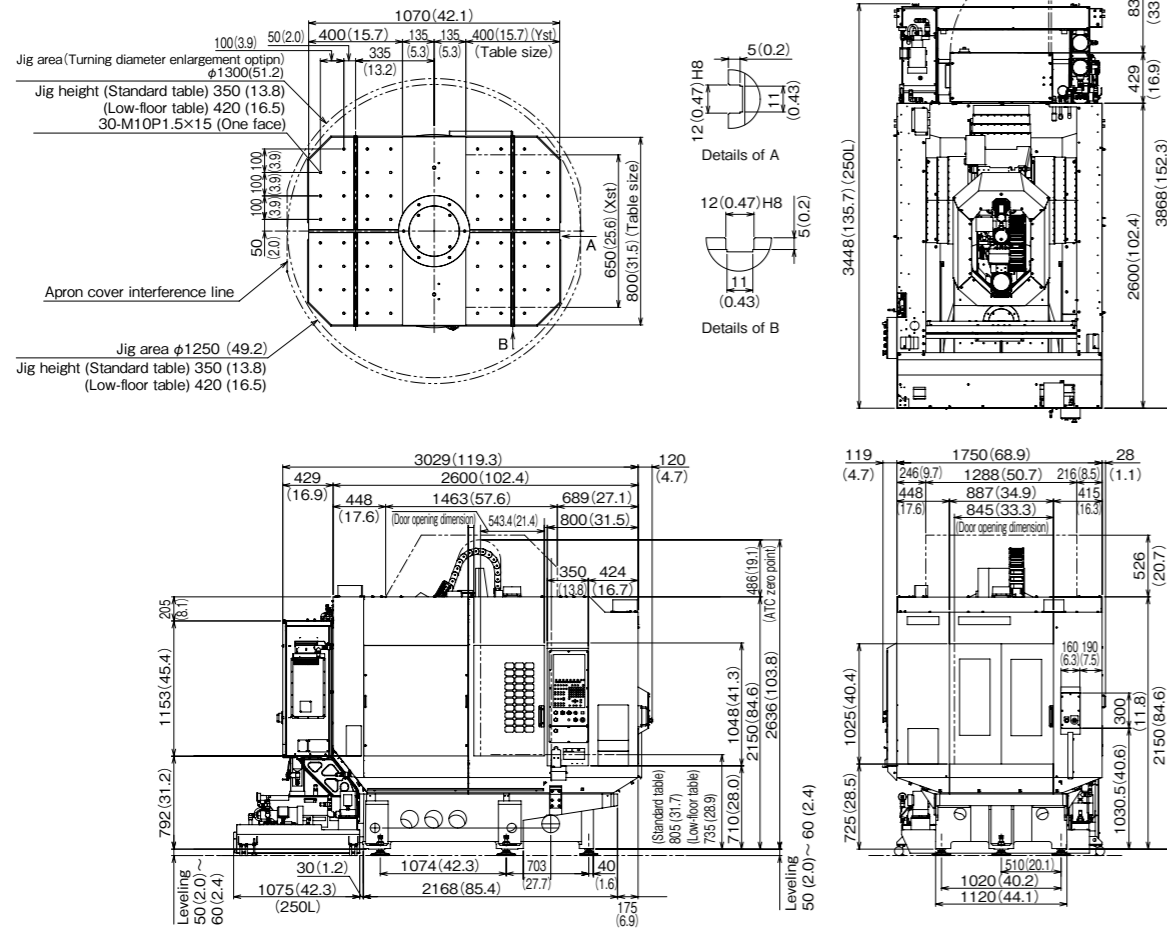


* Depending on the type of coolant, it may have a significant influence on the machine lifecycle. It is recommended to use the coolant which is commercially designated as high lubricity, for example Emulsion type. Especially, the coolant of chemical solution type (ex. Synthetic type) is prohibited to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

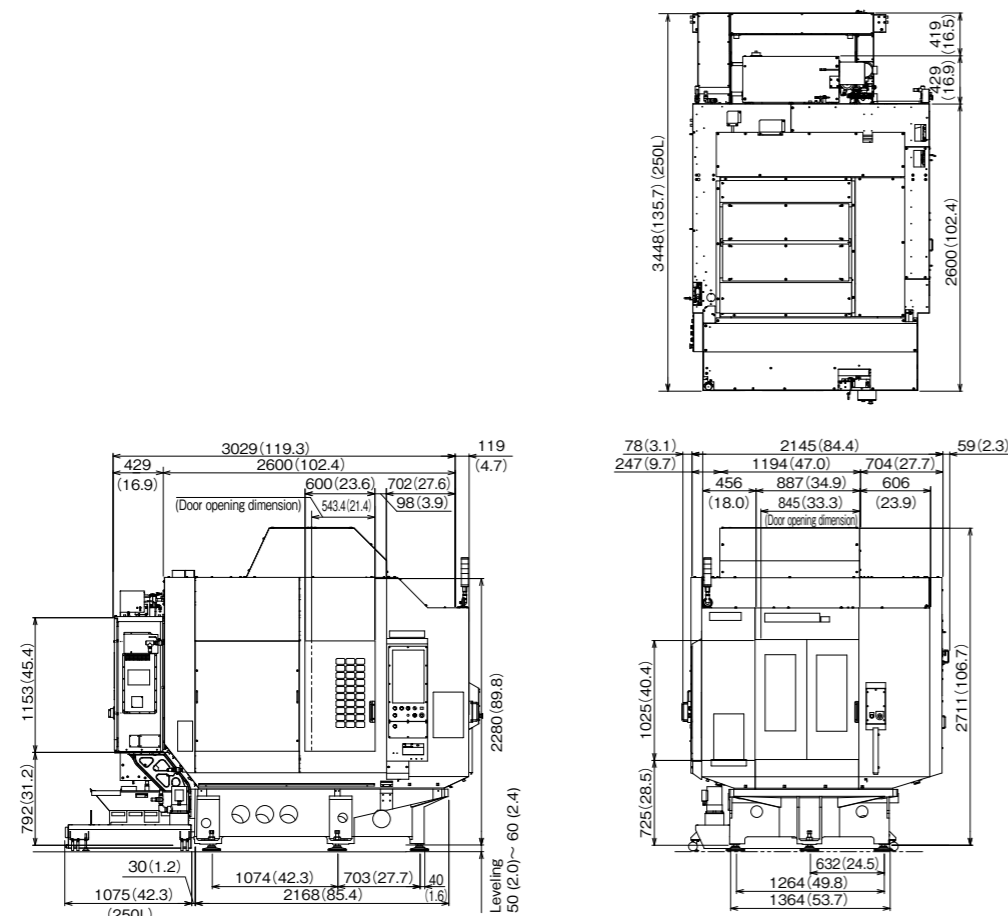
- Coolant tank
 - ① Coolant tank, 200L
 - ② Coolant tank, 200L for CTS 1.5MPa
 - ③ Coolant tank, 200L for CTS 1.5MPa with cyclone filter
 - ④ Coolant tank, 250L
 - ⑤ Coolant tank, 250L for CTS 1.5MPa
 - ⑥ Coolant tank, 250L for CTS 1.5MPa with cyclone filter
 - *250L only available for 40-tool type
- Coolant Through Spindle (CTS) 1.5MPa
- Coolant Through Spindle (CTS) 7MPa for 40-tool type
- Head coolant nozzle for 40-tool type
- Column coolant nozzle for 14/22-tool type
- Chip shower
- Back washing system
- Tool washing, air-assisted type
- Rotary Table T-200A
- Tool breakage detector, touch type
- Hydraulic rotary joint 4P with pneumatic relay box 12P
- Pneumatic relay box 12P
- Cleaning gun
- Automatic oil lubricator
- Automatic grease lubricator
- Work light, 1 or 2 lamps
- Table light
- Signal light, 1, 2, or 3 lamps
- Head coolant nozzle for 40-tool type
- Automatic door with switch panel 10 holes
- Area sensor
- Specified color
- Manual pulse generator
- Additional axis cable for 1 axis
- Spindle override
- Outside rotary table indexing switch for 1 or 2 axes
- Turning diameter enlargement, D1300mm
- Top cover
- Side cover with transparent window (single side, both sides)
- Memory expansion 500 Mbytes
- RS232C 25pin connector at control box
- EXIO board assembly
 - EXIO board, input32/output32, additional #1
 - EXIO board, input32/output32, additional #2
- Master on circuit
- Power supply expansion 50A
- 100V outlet in control box
- Breaker handle cover
- Switch panel 8 or 10 holes
- CC-link, master station
- CC-link, remote device station
- PROFIBUS DP, slave
- DeviceNet, slave
- PLC programming software for Windows®, Vista, 7, and 8.1
- 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.
- Fixture shower valve unit
- Grip cover for tool magazine
- Mesh basket for collecting chips

External Dimension

14/22 tool specification



40-tool specification



Machine Specifications and NC Unit Specifications

Machine specifications

R650X2 / R650X2 RD #12		14/22 tool	40-tool
CNC Unit		CNC-C00	
Travels	X axis	650 (25.6)	
	Y axis	400 (15.7)	
	Z axis	305 (12.0)	
	Distance between table top and spindle nose end	250~555 (9.8~21.8) [320~625 (12.6~24.6)] #7	
Table	Work area size	One face 800x400 (31.5x15.7)	
	Max. loading capacity (uniform load)	One face 200 (441) [300 (661)] #6	
Spindle	Spindle speed	10,000min ⁻¹ specifications : 1~10,000 16,000min ⁻¹ specifications (Optional) : 1~16,000 10,000min ⁻¹ high-torque specifications (Optional) : 1~10,000	
	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 50 x 50 (1,969 x 1,969 x 1,969)	
	Cutting feed rate	X,Y,Z axis : 1~30,000 (0.04~1,181) #8	
ATC unit	Tool shank type	MAS-BT30	
	Pull stud type #4	MAS-P30T-2	
	Tool storage capacity	14/22	40
	Max. tool length	200 (7.9)	250 (9.8)
Tool selection method	Max. tool diameter	80 (3.1)	55 (2.1) / 125 (4.9) No adjacent tool
	Max. tool weight #1	3.0 (6.6) (total tool weight : 25 (55.1) for 14 tools, 40 (88.2) for 22 tools)	
	Max. tool weight #2	4.0 (8.8) (total tool weight : 80 (176.3))	
Tool change time	Tool To Tool	0.7 / 0.8 (14 tool / 22 tool)	
	Chip To Chip	1.4 / 1.6 (14 tool / 22 tool)	
Electric motor	Main spindle motor (10min/continuous) #2	10,000min ⁻¹ specifications : 10.1 / 7.0 16,000min ⁻¹ specifications (Optional) : 7.4 / 5.1 10,000min ⁻¹ high-torque specifications (Optional) : 12.8 / 9.2	
	Axis feed motor	X,Y axis : 1.0 Z axis : 1.8	
Power source	Power supply	AC 200V±10% / 50/60Hz±1Hz	
	Power capacity (continuous)	10,000min ⁻¹ specifications : 9.5 16,000min ⁻¹ specifications (Optional) : 9.5 10,000min ⁻¹ high-torque specifications (Optional) : 10.4	
Machining dimensions	Height	2,696 (106.2)	
	Required floor space [with control unit door open]	1,897x3,448 [3,868] (74.7x135.7 [152.3])	
Accuracy #3	Weight	3,500 (7,716)	
	Accuracy of bidirectional axis positioning (ISO230-2 : 1988)	0.006~0.020 (0.00024~0.00079)	
	Repeatability of bidirectional axis positioning (ISO230-2 : 2014)	Less than 0.004 (0.00016)	
Standard accessories	Instruction Manual (1 set), leveling bolts (5 pcs.), leveling plates (5 pcs.)		

*1 / Actual tool weight differs depending on the configuration and center of gravity. The figures shown here are for reference only. *2 / Spindle motor output differs depending on the spindle speed. *3 / Measured in compliance with ISO standards and Brother standards. 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 300kg (one face) by changing the parameter. Please consult us separately. *7 / Values when the low-floor table is selected. *8 / When using high accuracy mode B. (Non high accuracy mode B) X,Y axis : 1~10,000mm/min Z axis : 1~20,000mm/min. *9 / 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. *10 / 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

Item	CNC-C00
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, ±999.9999 inch
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)
- Startup 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
- Chip saving function
- Standby mode
- Chip saving 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 40blocks)
- Waveform output to memory card
- Screen shot
- Auto notification
- Machining load monitoring
- ATC monitoring

NC

- Expanded workpiece coordinate system
- Scaling
- Mirror image
- Menu programming

Quick turn table specifications

Type	0 deg./180 deg. turntable system
Table dimension	mm (inch) One face 800 x 535 (31.5 x 21.1)
Max. turning diameter	mm (inch) D1,250(49.2) [D1,300 (51.2)] *10
Max. jig height	mm (inch) 350 (13.8) [420(16.5)] #7
Table work area size	mm (inch) One face 800 x 400 (31.5 x 15.7)
Max. loading capacity	kg (lbs) One face 200 (441) [300(661)] #6
Rated table load inertia for turning axis	kg·m ² One face 35.8 [53.7] #6
Table turning system	AC servo motor(0.82kW) Worm gear(total speed reduction ratio:1/60)
Table position time	sec 3.4 *11
Table change repeatability	mm (inch) 0.01(0.0004) (in the X,Y, and Z axes directions 335(13.2) from the center of rotation)

*10 / When the turning diameter enlargement option is selected.
*11 / When table loading on one face is 200kg.
* Quick turn table is a turntable type 2-face pallet changer.

Optional NC functions

- Memory expansion 500 Mbytes
- High accuracy mode BII, look-ahead 200 blocks, with smooth path offset
- Spindle override
- Local coordinate system
- One-way positioning
- Operation in tape mode
- Inverse time feed

NC

- Submicron command *3
- Interrupt type macro
- Rotary fixture offset

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

*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.
*Functions listed under (NC) and (Conversation) are available only for NC programs and conversation programs respectively.