

R650X1

Global Service Sites

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

U. S. A.

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

Germany

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

India

BROTHER INTERNATIONAL (INDIA) PVT LTD.
Machine Tools Bengaluru Technical Center
Park Landing, Ground Floor, Municipal No.5AC-709, 2nd Block, HRBR Extension,
Bengaluru - 560 043 Karnataka, India
PHONE:(91)80-6405-7999

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, Pravat Sub-District, Pravat 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

BROTHER INDUSTRIES, LTD.

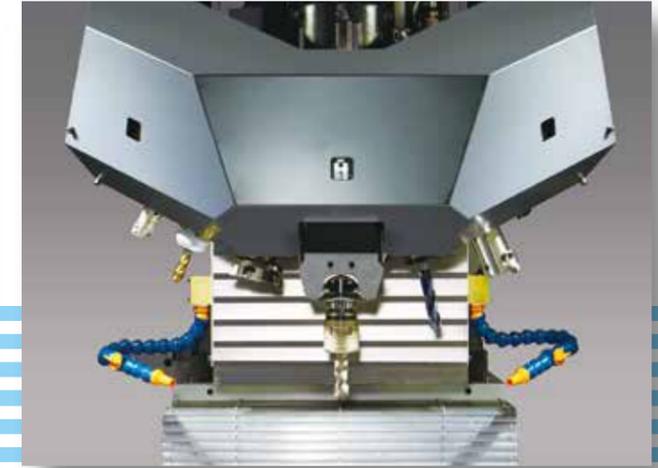
Machinery Business Division

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



**Enlargement of
Machining Area**

**Quest for
High Performance**

**High Reliability and
Environmental
Performance**

Expanding World of the SPEEDIO

The R650X1 is equipped with the "QT table", Brother's original high-speed 2-face pallet changer that has now been installed on over 15,000 units.

The machine demonstrates high productivity, and also provides the largest machining area among "QT table" machines, enabling the mounting of large jigs that was not possible on conventional machines. The release of this new model will further expand the world of the SPEEDIO.

R650X1

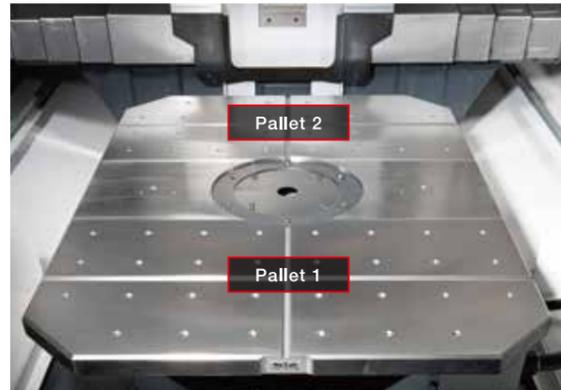
Max. spindle speed (min ⁻¹)	10,000 / 16,000 (optional) 10,000 high torque (optional)
Travel of each axis (mm)	X 650 Y 400 Z 305
Tool storage capacity (pcs.)	14 / 22
Rapid traverse rate (m/min)	X / Y / Z 50 / 50 / 50
Required floor space (mm)	1,837 × 3,248
Coolant Through Spindle (CTS)	Optional
BT dual 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

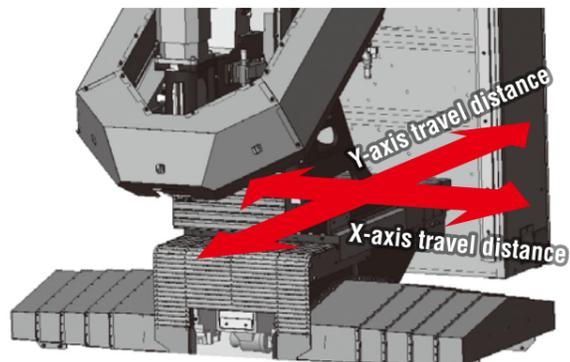
Max. loading capacity (one face)
200kg → **300kg***

* The parameter must be changed.

Machining area

Making use of our original pallet changer technologies that have been installed on over 15,000 units, the machine provides sufficient travels and a large jig area, which are not available on conventional #30 machines standard equipped with a pallet changer.

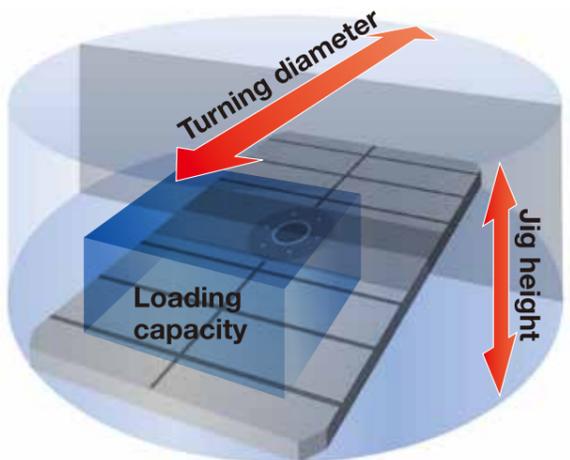
Sufficient travels that enlarge machining range



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



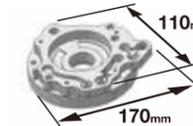
The turning diameter and the table size have been increased, enabling the mounting of large jigs. In particular, this makes mounting a trunnion jig using a rotary table easier.

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

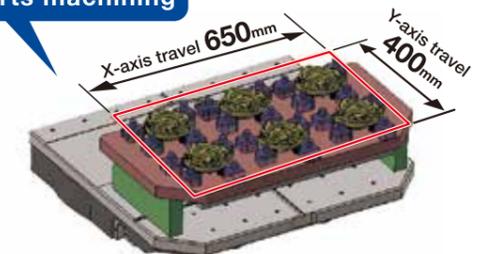
Jig mounting examples

Mounting example 1

- Workpiece : Oil pump body (automobile)
- Machining details : Machining six small workpieces using a flat jig

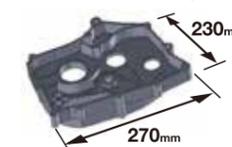


Multiple parts machining

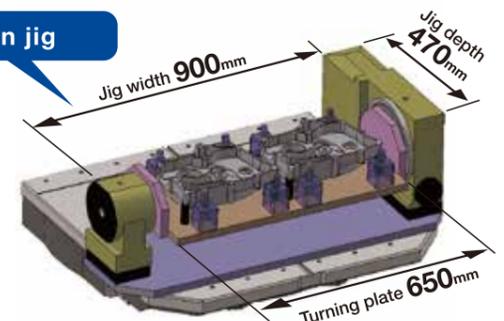


Mounting example 2

- Workpiece : Crank case (motorcycle)
- Machining details : Multi-face machining for medium-sized workpieces (2 pcs.) using a trunnion jig



Trunnion jig

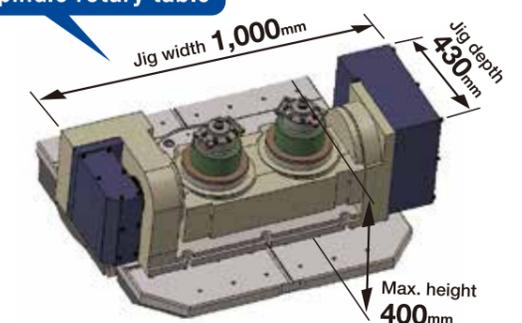


Mounting example 3

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



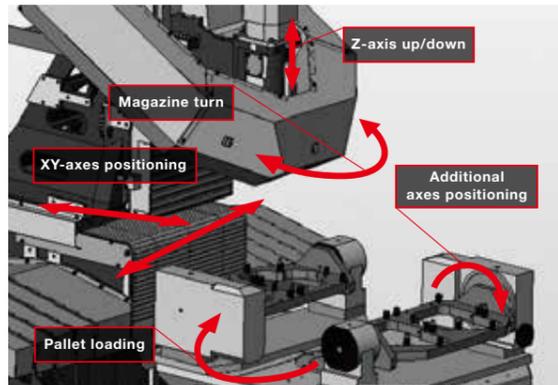
Tilting two-spindle rotary table



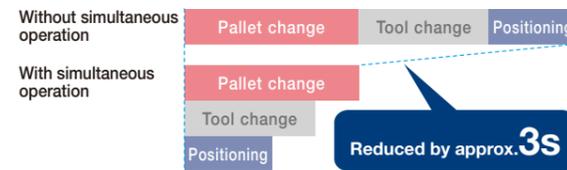
Productivity

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 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.

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.

22-tool magazine
 Tool - Tool : **0.9s**
 Chip - Chip : **1.7s**

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

NC unit

Equipped with the latest CNC-C00 controller with greatly enhanced processing capabilities. Operability and maintainability are improved, providing increased user-friendliness.

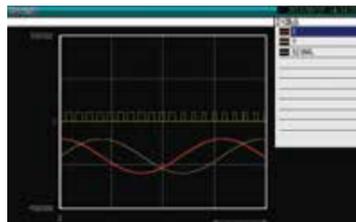
Shortcut keys

Open the screen you want to view quickly.



Waveform display

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



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.

Network function

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

G/M code macro

Macro programs can be called using G/M codes by assigning subprogram numbers to the desired G/M codes.

Tap return function

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



PLC function

Standard equipped with PLC. The standard 16 input and output points each can be extended to up to 1,024 points each (optional).

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) **40Nm**
 Max.output **18.9kW**

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

	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 : 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)	81 : 40 × 4.2 × 484 (5.0 : 1.57 × 0.17 × 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)
		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)
		Cutting amount cm ³ /min(inch ³ /min): Cutting width mm(inch) × Cutting depth mm(inch) × Feed rate mm/min(inch/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.



Maintenance notice function

Notifies operators of maintenance requirements, such as greasing.



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.

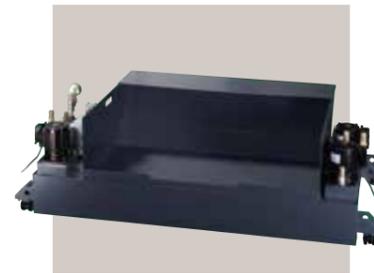


Highly efficient spindle motor

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

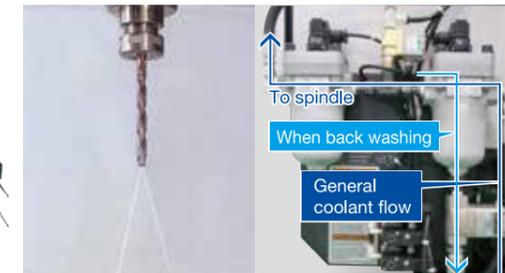


Optional Specifications



Coolant unit

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



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.



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 index switch

This switch enables operation of the outer index table. (Photo: Tank with CTS)



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-200



Feature ① 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.

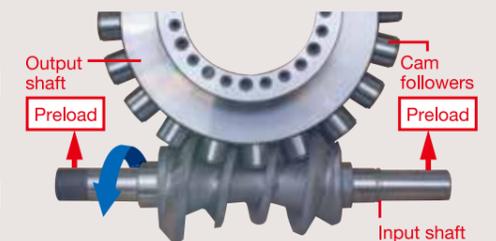
Feature ② High Accuracy

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

Feature ③ 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



- 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)
- Back washing system (for CTS)
- 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 (D1,300 mm)
- Top cover
- Side cover (transparent board type)
- Memory expansion (approx. 500 Mbytes)
- RS232C (25 pin) for control box
- Expansion I/O board (EXIO board)
 - ①EXIO board assembly *2
 - ②Additional EXIO board assembly
- High accuracy mode BII (look-ahead 200 blocks, smooth path offset)

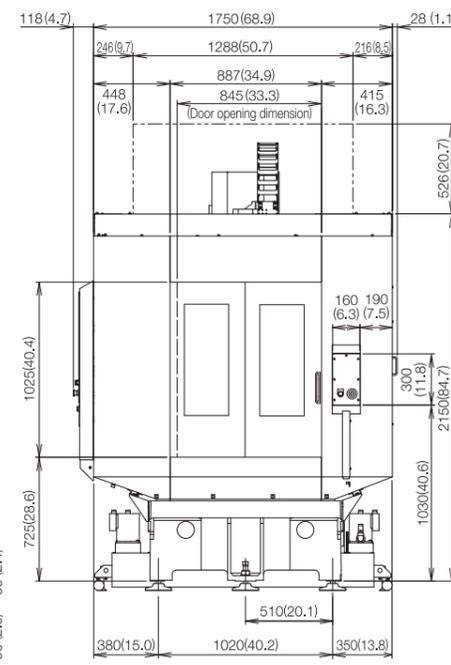
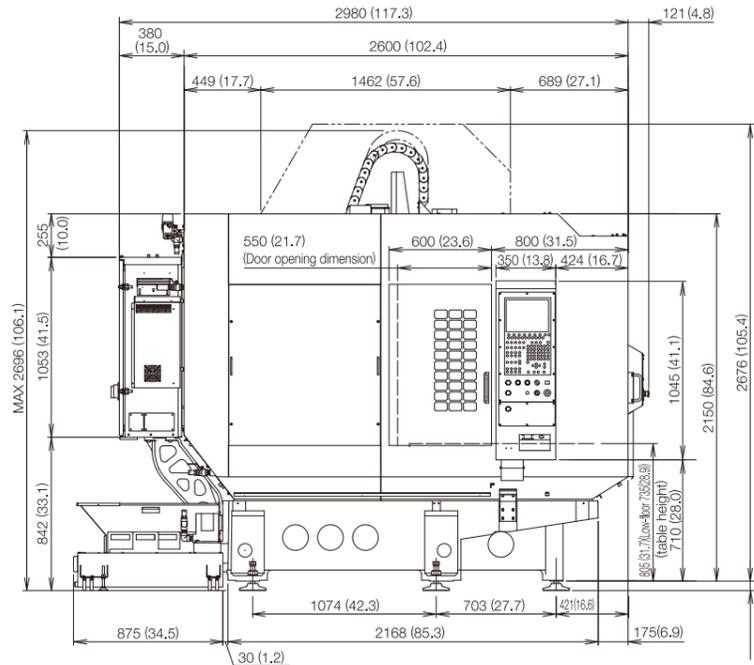
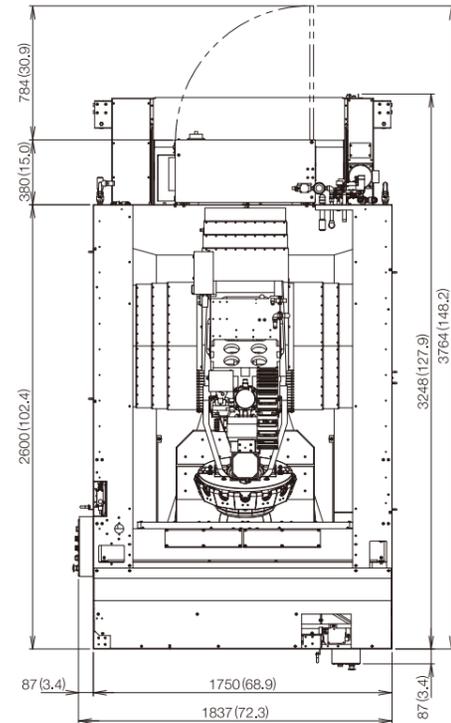
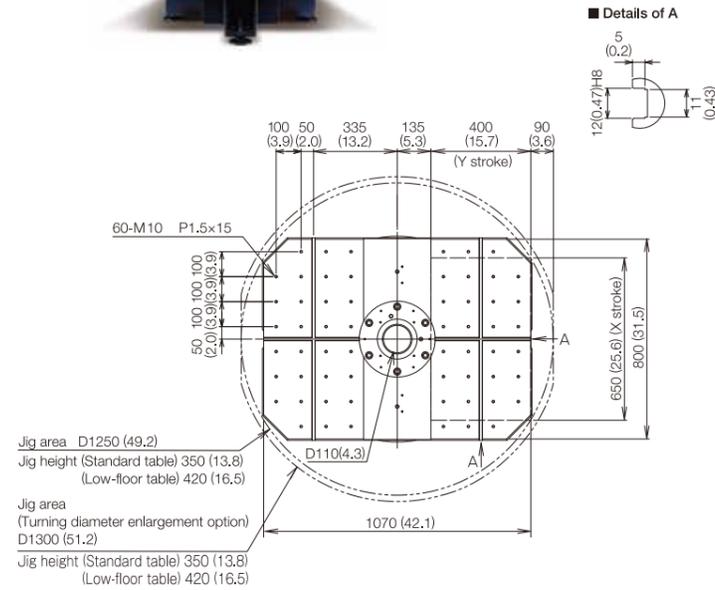
- Submicron command *1
- Interrupt type macro
- High-speed processing *1
- Rotary fixture offset
- Switch panel (6 or 10 holes)
- Front switch panel (8 holes)
- Fieldbus *2
 - ①CC-Link (remote device station)
 - ②PROFIBUS DP (slave)
 - ③DeviceNet (slave)
- PLC programming software (for Windows® XP, Vista, and 7)
- Teaching pendant
- Jig shower valve unit
- Grip cover
- Mesh basket for chips

Windows® is a trademark or registered trademark of Microsoft Corporation in the United States and/or other countries.
*1. Changing to the conversation program is disabled.
*2. When the fieldbus is selected, the EXIO board assembly cannot be selected.

External Dimension



SPEEDIO R650X1



mm (inch)

Machine Specifications and NC Unit Specifications

Machine specifications

Item		SPEEDIO R650X1
CNC Unit		CNC-C00
Travels	X axis	650 (25.6) mm (inch)
	Y axis	400 (15.7) mm (inch)
	Z axis	305 (12.0) mm (inch)
	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) mm (inch)
	Max. loading capacity (uniform load)	One face 200 (441) [300 (661)] *6 kg (lbs)
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 min ⁻¹
	Speed during tapping	MAX. 6,000 min ⁻¹
	Tapered hole	7/24 tapered No.30
	BT dual contact system (BIG-PLUS)	Optional
	Coolant Through Spindle (CTS)	Optional
Feed rate	Rapid traverse rate (XYZ-area)	50 x 50 x 50 (1,969 x 1,969 x 1,969) m/min (inch/min)
	Cutting feed rate	X,Y,Z axis : 1~30,000 (0.04~1,181) *8 mm/min (inch/min)
ATC unit	Tool shank type	MAS-BT30
	Pull stud type *4	MAS-P30T-2
	Tool storage capacity	14 / 22 pcs.
	Max. tool length	200 (7.9) mm (inch)
	Max. tool diameter	80 (3.1) mm (inch)
Tool change time *5	Max. tool weight *1	3.0 (6.6) (total tool weight : 25 (55.1) for 14 tools, 40 (88.2) for 22 tools) kg (lbs)
	Tool selection method	Random shortcut method
	Tool To Tool	0.8 / 0.9 (14 tool / 22 tool) sec.
Electric motor	Chip To Chip	1.6 / 1.7 (14 tool / 22 tool) sec.
	Cut To Cut	1.3 / 1.4 (14 tool / 22 tool) sec.
Power source	Main spindle motor (10min/continuous) *2	10,000min ⁻¹ specifications : 10.1 / 6.7 16,000min ⁻¹ specifications (Optional) : 7.4 / 4.9 10,000min ⁻¹ high-torque specifications (Optional) : 12.8 / 8.8 kW
	Axis feed motor	X,Y axis : 1.0 Z axis : 1.8 kW
Power supply	Power capacity (continuous)	AC V±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 kVA
Air supply	Regular air pressure	0.4~0.6 (recommended value : 0.5MPa *9) MPa
	Required flow	50 L/min
Machining dimensions	Height	2,696 (106.2) mm (inch)
	Required floor space [with control unit door open]	1,837x3,248 [3,764] (72.3x127.9 [148.2]) mm (inch)
	Weight	3,500 (7,717) kg (lbs)
Accuracy *3	Accuracy of bidirectional axis positioning (ISO230-2 : 2006)	0.006~0.020 (0.00024~0.00079) mm (inch)
	Repeatability of bidirectional axis positioning (ISO230-2 : 2006)	Less than 0.004 (0.00016) mm (inch)
Standard accessories		Instruction Manual (1 set), anchor bolts (5 pcs.), leveling bolts (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.

NC unit specifications

Item		
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)
- Start-up log
- Machine lock
- Computer remote
- Built-in PLC
- Motor insulation resistance measurement
- External input signal key
- High-accuracy mode AIII
- 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)
- 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 (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
- 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

*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.