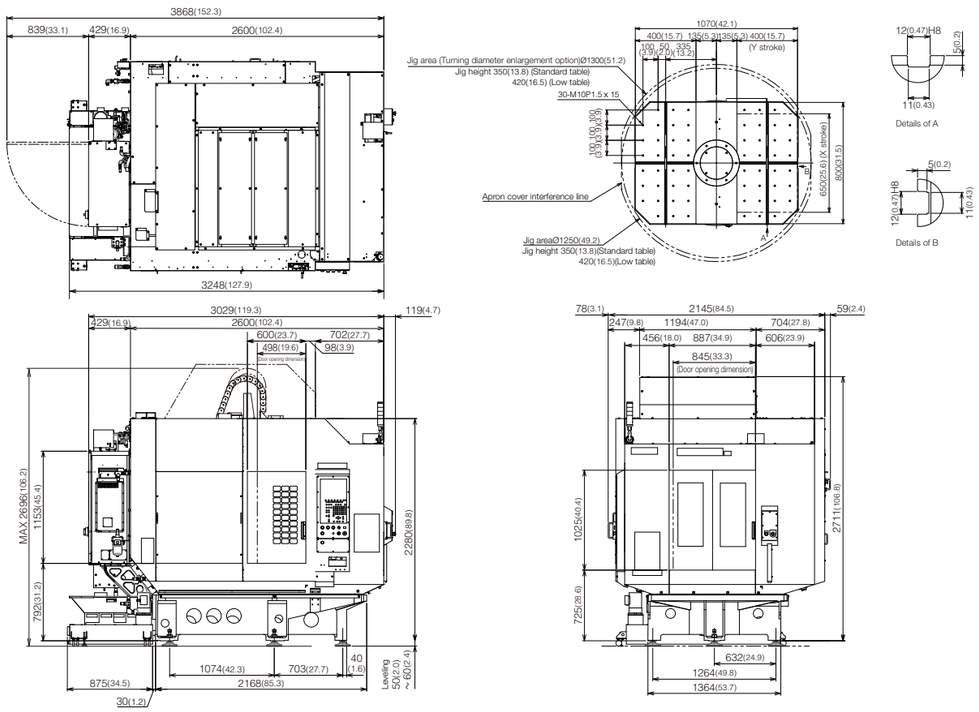
External Dimensions



- 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.

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
PHONE:(1)224-653-8415 FAX:(1)224-653-8821

Germany

BROTHER INTERNATIONALE INDUSTRIEMASCHINEN GmbH
MACHINE TOOLS DIVISION FRANKFURT TECHNICAL CENTER
PHONE:(49)69-977-6708-0 FAX:(49)69-977-6708-80

India

BROTHER INTERNATIONAL (INDIA) PVT LTD.
Machine Tools Bengaluru Technical Center
PHONE:(91)80-4372-1645

China

BROTHER MACHINERY (SHANGHAI) LTD.
(MACHINE TOOLS DIV.) SHANGHAI TECHNICAL CENTER
PHONE:(86)21-2225-6666 FAX:(86)21-2225-6688

China

BROTHER MACHINERY (SHANGHAI) LTD.
CHONGQING BRANCH (MACHINE TOOLS DIV.) CHONGQING TECHNICAL CENTER
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
PHONE:(52)55-8503-8760 FAX:(52)442-483-2667

Thailand

BROTHER COMMERCIAL (THAILAND) LTD.
MACHINE TOOLS TECHNICAL CENTER
PHONE:(66)2321-5910 FAX:(66)2321-5913

India

BROTHER INTERNATIONAL (INDIA) PVT LTD.
Machine Tools Gurugram Technical Center
PHONE:(91)80-4372-1645

China

BROTHER MACHINERY (SHANGHAI) LTD.
DONGGUAN BRANCH (MACHINE TOOLS DIV.) DONGGUAN TECHNICAL CENTER
PHONE:(86)769-2238-1505 FAX:(86)769-2238-1506

Figures in brackets ( ) are the country codes.

Specifications may be subject to change without any notice.

BROTHER INDUSTRIES, LTD.
Machinery Business Division

1-5, Kitajizoyama, Noda-cho, Kariya-shi,
Aichi-ken 448-0803, Japan
PHONE: 81-566-95-0075
FAX : 81-566-25-3721
http://www.brother.com

The information in this catalogue is current as of Octover 2018. ver.1810

Compact Machining Center
SPEEDIO

brother
at your side

New Model Equipped with 40-Tool Magazine

R650X2
with Pallet Changer

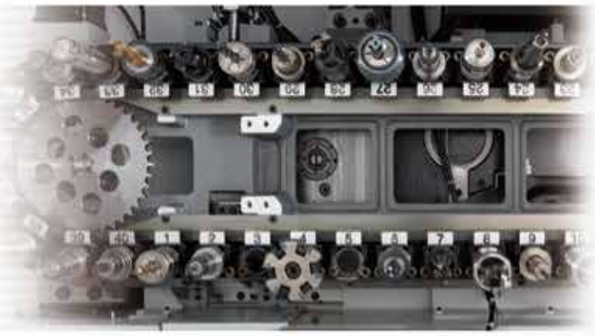
Equipped with SPEEDIO's Largest Tool Magazine!
Large Jig Mountable Pallet Changer Machine

01

Equipped with

40 tool magazine

New 40-tool magazine model introduced to product lineup in addition to 14- and 22-tool magazine models.
Making use of the 2-face pallet changer, process integration has been improved to increase productivity.



02

Separation

of machining room and magazine

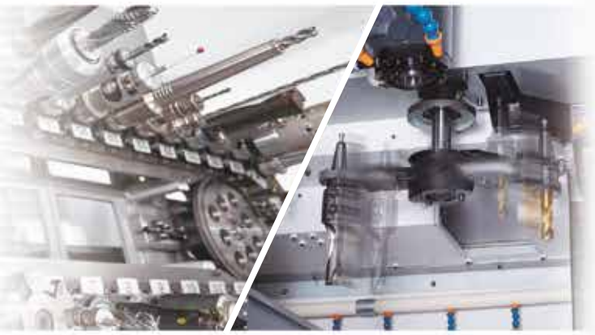
To prevent chips entering the magazine, a shutter has been installed to the tool pot to separate the machining room and the tool magazine.

03

Max. tool weight: **4**kg

Max. tool length: **250**mm

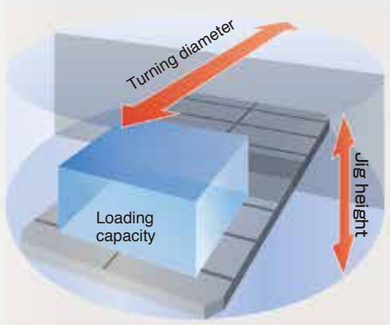
In addition to the 40-tool magazine, the maximum tool weight and maximum tool length have increased, enabling a broader range of tool selection.



04

Enough jig area to mount a large jig

Work area : **800**mm×**400**mm(one face)
Loading capacity : **200**kg (max. 300 kg) (one face)
Jig height : **350**mm(low table: 420 mm)
Turning diameter : **1,250**mm(max. 1,300 mm)



●Coolant Through Spindle (CTS): Supported up to **7MPa** (optional)

R650X2 40-Tools Magazine Model Basic Specifications / NC Unit Specifications

Machine specifications

Item			R650X2 / R650X2 RD ＊12
CNC Unit			CNC-C00
Travels	X axis	mm (inch)	650 (25.6)
	Y axis	mm (inch)	400 (15.7)
	Z axis	mm (inch)	435 (17.1)
	Distance between table top and spindle nose end	mm (inch)	250～685 (9.8～26.9) [320～755 (12.6～29.7)] ＊7
Table	Work area size	mm (inch)	One face 800×400 (31.5×15.7)
	Max.loading capacity (uniform load)	kg (lbs)	One face 200 (300) ＊6
Spindle	Spindle speed	min-1	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	min-1	MAX. 6,000
	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)	m/min (inch/min)	50 × 50 × 50 (1,969 × 1,969 × 1,969)
	Cutting feed rate	mm/min (inch/min)	X,Y,Z axis : 1～30,000 (0.04～ 1,181) ＊8
ATC unit	Tool shank type		MAS-BT30
	Pull stad type ＊4		MAS-P30T-2
	Tool storage capacity	80(176.3)pcs.	40
	Max. tool length	mm (inch)	250 (9.8)
	Max. tool diameter	mm (inch)	55 (2.1) /125 (4.9) No adjacent tool
	Max. tool weight ＊1	kg (lbs)	4.0 (8.8) /〈total tool weight : 80 (176.3)〉
	Tool selection method		Duble arm method (random closest path)
Tool change time ＊5	Tool To Tool	sec.	0.9
	Chip To Chip	sec.	2.6
Electric motor	Main spindle motor (10min/continuous) ＊2	kW	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	kW	X,Y axis : 1.0 Z axis : 1.8
Power source	Power supply		AC V±10%、50/60Hz±1Hz
	Power capacity (continuous)	kVA	10,000min-1 specifications : 9.5 16,000min-1 specifications (Optional) : 9.5 10,000min-1 high-torque specifications (Optional) : 10.4
	Air supply — Regular air pressure	MPa	0.4～0.6 (recommended value : 0.5MPa ＊9)
	Air supply — Required flow	L/min	100
Machining dimensions	Height	mm (inch)	2,696 (106.2)
	Required floor space [with control unit door open]	mm (inch)	2,145×3,248 [3,868] (84.4×127.9 [152.2])
	Weight	kg (lbs)	4,000 (8,818.4)
Accuracy ＊3	Accuracy of bidirectional axis positioning (ISO230-2 : 2006)	mm (inch)	0.006～0.020 (0.00024～0.00079)
	Repeatability of bidirectional axis positioning (ISO230-2 : 2006)	mm (inch)	Less than 0.004 (0.00016)
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. ＊12／The machine needs yo be equipped with a relocation detectiondepending on the destination.Machine equipped with a relocation detection device come with "RD"at the end the model name.

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)
	Interpolation — Circular : 2 axes Helical/conical : 3 axes (X,Y,Z)
Least input increment	0.001mm, 0.0001inch, 0.001 deg.
Max.programmable dimension	±9999.999mm, ±999.9999inch
Display	12.1-inch color LCD
Memory capacity	Approx.100 Mbytes (Total capacity of program and data bank)
External communication	USB memory interface, Ethernet, RS232C
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

＊ Ethernet is a trademark or registered trademark of XEROX in the United States.
＊ Number of "control axes"and/or"simultaneously controlled axes"are maximum number of axes, which will differ depending on the destination country and the machine specifications.

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 (300) [300(661)] ＊6
Rated table load inertia for turning axis	kg･m²	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.

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
- ●External input signal key
- ●High-accuracy mode AⅢ
- ●Tool length measurement
- ●Tool life management / spare tool
- ●Background editing
- ●Graphic display
- ●Subprogram
- ●Herical / 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 systemⅡ (X,Y,Z axes)
- ●Automatic power off (energy saving function)
- ●Automatic coolant off (energy saving function)
- ●Tool washing filter with filter clogging detection
- ●Waveform output to memory card
- ●Screen shot
- ●Auto notification
- ●Inverse time feed

NC

- ●Expanded workpice coordinate system
- ●Scaling
- ●Mirror image
- ●Menu programming
- ●Program compensation
- ●Tool length compensation
- ●Cutter compensation
- ●Macro function
- ●Local coordinate system
- ●One-way positioning
- ●Opeation 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
- ●Memory expansion (Approx.

Optional NC functions

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
- ●Feature coordinates setting

*1. Measuring instrument needs to be prepared by users.
*2. 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.