

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

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Thailand

BROTHER COMMERCIAL THAILAND LTD.
MACHINE TOOLS TECHNICAL CENTER
1232 Rama 9 Road, Suanluang Sub-District, Suanluang District,

Bangkok 10250, Thailand PHONE:(66)2-374-6447 FAX:(66)2-374-2706

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 29-7, Unit 3, Zhengsheng Bailaohui Building , No.3 Xijiao Road , Yangjiaping, Jiulongpo District, Chongqing PHONE:(86)23-6865-5600 FAX:(86)23-6865-5560

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

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BANGALORE TECHNICAL CENTER
Park Landing, Ground Floor, Municipal No.5AC-709, 2nd Block, HRBR Extension, Bangalore - 560 043 Karnataka, India PHONE:(91)80-6405-7999

BROTHER MACHINERY (SHANGHAI) LTD.
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1F, No.45 North Road Lianfeng, Xianxi Village, Chang'an Town, Dongguan, Guanadona Province, China

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Figures in brackets () are the country codes.

Specifications may be subject to change without any notice.



BROTHER INDUSTRIES, LTD. MACHINERY & SOLUTION COMPANY

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



Compact Machining Center **SPEEDIO**







S1000%1 Machining Area

Sufficient travels and table size

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

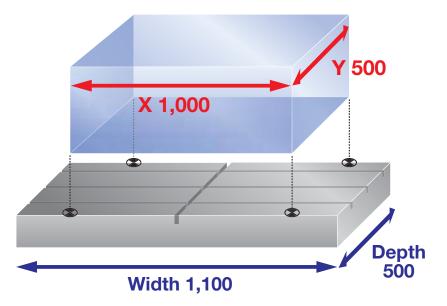
Travels:

X1,000 Y500

Work area size:

X1,100 Y500

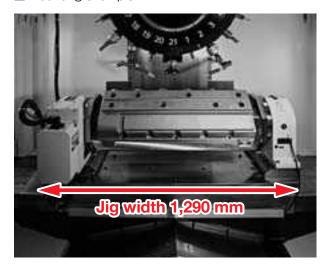
Max. loading capacity: 400kg



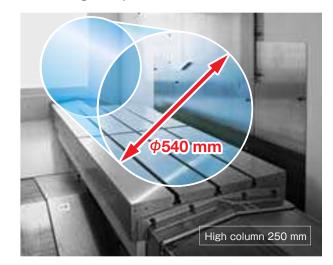
Mounting large jigs possible

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

Mounting example 1



Rotary table diameter: ø250 Workpiece size: 830×264×135 (mm) Mounting example 2



Trunnion-type fixture with a turning diameter of ø540 mm can be mounted.

S1000X1

Productivity

High-speed and optimal operation control

■ Fast acceleration/deceleration spindle

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

Spindle start/stop time : 0.15\$

*When using high-torque specs

Nonstop ATC

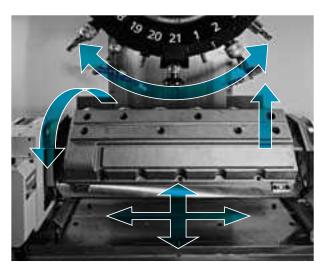
High-speed tool change has been achieved by optimizing and increasing the speed of spindle start/stop, Z-axis up/down, and magazine movement.

Chip — Chip : 1.45

Tool - Tool : 0.85

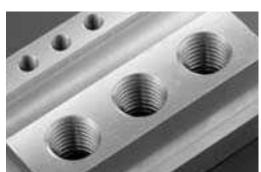
Simultaneous operation control

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



Highly-responsive servomotor

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



Comparison of tapping cycle time **10**% less

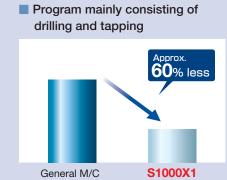
Machining details ○M20 tapping OPeripheral velocity:

377 m/min OMaterial: Aluminum

* Data taken running machining program

Comparison of cycle time

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





* Data taken running machining program created by Brother

S1000X1 Machining Capabilities

Highly rigid structure

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

Column

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

Table

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

Base

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

High-power spindle motor

Standard specifications

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



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

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

■ High-torque specifications (optional)

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



Large hole drilling using high-torque specs Machining details OHole diameter : ø40 mm OMaterial: Carbon steel

Spindle motor characteristics Max. torque : 92Nm

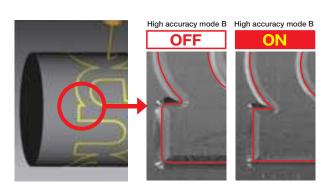
Max. output: 26.2kW

Pursuit of high accuracy

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

High accuracy mode BI: Look-ahead 30 blocks

High accuracy mode BII: Look-ahead 200 blocks



S1000X1

Usability

NC Unit

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

brother



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



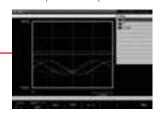
USB interface

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



Machining support functions

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



System capacity

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



Accessibility

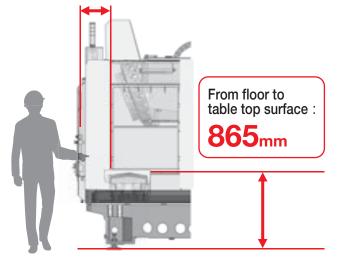
Interlocking double doors are used. This provides a wider door opening width, improving workability.

Door opening width: 1,150mm



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

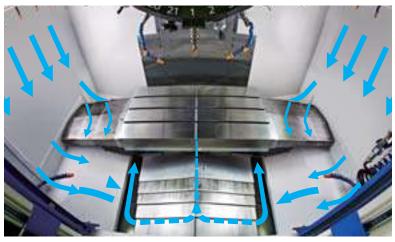
From front of machine to 226mm

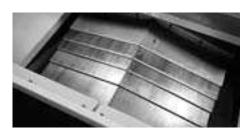


Reliability and Environmental Performance

High reliability

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

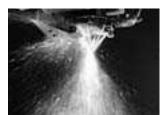




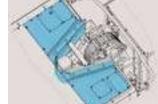
Roof shape telescopic cover

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

Chip shower



becoming attached to the holder.







Air-assisted tool washing (optional) Top cover (optional) High discharge pressure prevents chips Separates the machining area from the machine room.

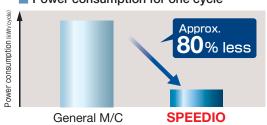
measurement function Detects motor failure in advance.

■ Motor insulation resistance Maintenance notice function Notifies operators of maintenance requirements, such as greasing.

High environmental performance

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

Power consumption for one cycle



* Data taken running machining program created by Brother





LED type work light (optional)

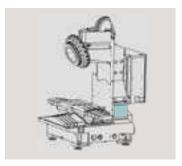
Energy saving pump

- The SPEEDIO is an earth-friendly machine equipped with a variety of energy-saving functions.
 - O Automatic coolant off : Turns off the coolant pump when the preset time elapses.
 - : Turns off the servomotor when the machine is not operated for the preset time.
- O Automatic work light off: Turns off the work light when the preset time elapses.
- O Automatic power off : Turns off the power at the preset time.

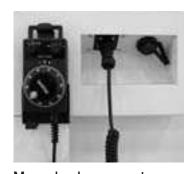
Optional Specifications



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



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

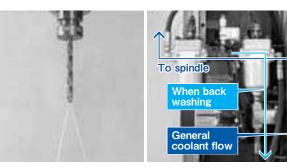


Manual pulse generator A cable is provided for the manual pulse generator, making setup easier.





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

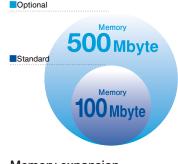


Coolant Through Spindle (CTS)

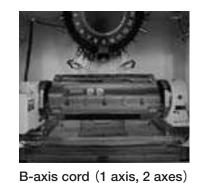
- 1.5 MPa CTS is ideal for deep drilling and high-speed machining. The back washing system automatically washes the filter to prevent it from clogging, enabling longer continuous operation without filter replacement.
- * Please consult Brother separately for 3 MPa CTS.



Automatic door (motor-driven) Interlocking double doors are used, achieving smooth operation.



Memory expansion Memory can be expanded to up to 500 Mbytes.



Multi-face machining is possible by adding one or two axes.

High-speed processing *1

2 PROFIBUS DP(slave)

PLC programming software

(3) DeviceNet(slave)

Rotary fixture offset

Fieldbus *2

Optional specifications

Coolant unit

Cleaning gun

- ①200L
- With chip shower and valve Pump: 250W x 3
- 2200L for CTS With chip shower, CTS, and valve Indicator light (1, 2, or 3 lamps)
- Pump: 250W x 3 + 650W
- Coolant Through Spindle (CTS) Mesh basket for chips
- Tool washing (air-assisted type)
- Tool breakage detector(touch type)
 B-axis cord(1 axis, 2 axes)
- Chip shower
- Manual pulse generator Spindle override

Area sensor

Specified color

Jig shower valve unit

Automatic oil lubricator

Automatic grease lubricator

Automatic door(motor-driven)

Back washing system (for CTS)

LED type work light (1 or 2 lamps)

Grip cover

Top cover

- Memory expansion (approx. 500 Mbytes) High accuracy mode BII
- (look-ahead 200 blocks, smooth path offset)

Side cover(transparent board type)

②Additional EXIO board assembly

RS232C(25 pin) for control box

Expansion I/O board (EXIO board)

Switch panel (6 holes, 10 holes)

①EXIO board assembly *2

- Submicron command *1
- High column (150 mm, 250 mm, 350 mm)Interrupt type macro
- 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.

(For Windows® XP, Vista, and 7)

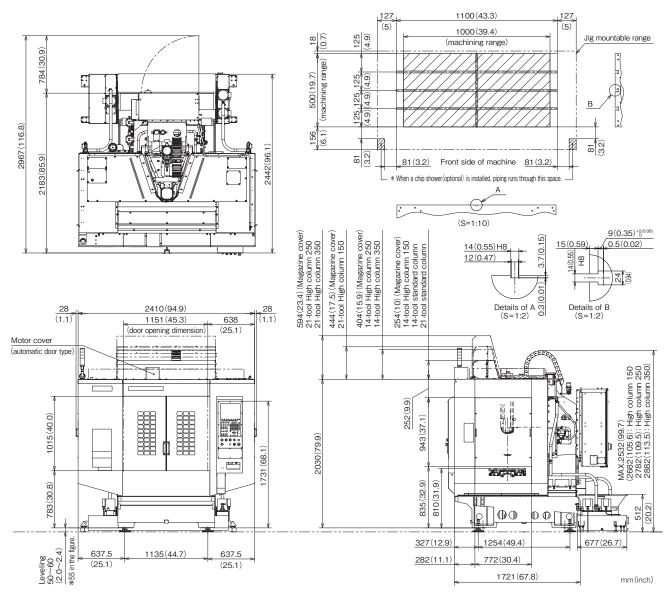
1) CC-Link (remote device station)

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

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External Dimensions and Machining capability

External Dimensions



Secure 700 mm(27.6 inch) between machines as maintenance space.

Machining capability			ADC	Cast iron	Carbon steel
Drilling	8	10,000min ⁻¹	D32(1.26) × 0.2(0.008)	D28(1.1) × 0.15(0.006)	D25(0.98) × 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)
		16,000min ⁻¹	D24(0.94) × 0.2(0.008)	$D22(0.87) \times 0.15(0.006)$	D18(0.71) × 0.1(0.004)
Tapping	V	10,000min ⁻¹	M27 × 3.0(1-8UNC)	M24 × 3.0(7/8-9UNC)	M16 × 2.0(5/8-11UNC)
To all alliance above according to all a		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)		16,000min ⁻¹	M22 × 2.5(7/8-9UNC)	M18 × 2.5(5/8-11UNC)	M14 × 2.0(1/2-13UNC)
Facing		10,000min ⁻¹	960:100 × 3.2 × 3,000 (58.6:3.94 × 0.13 × 118.1)	137: 40 × 6.0 × 573 (8.4: 1.57 × 0.24 × 22.6)	100: 40 × 5.2 × 484 (6.1: 1.57 × 0.2 × 19.1)
Cutting amount cm³/min (inch³/min):		10,000min ⁻¹ high-torque	1,700: 100 × 5.7 × 3,000 (102.4: 3.94 × 0.22 × 118.1)	137 : 40 × 6.0 × 573 (8.4 : 1.57 × 0.24 × 22.6)	100 : 40 × 5.2 × 484 (6.1 : 1.57 × 0.2 × 19.1)
Cutting width mm (inch) × Cutting depth mm (inch) × Feed rate mm/min (inch/min)		16,000min ⁻¹	660:100 × 2.2 × 3,000 (40.3:3.94 × 0.09 × 118.1)	73: 40 × 3.2 × 573 (4.5: 1.57 × 0.13 × 22.6)	48: 40 × 2.5 × 484 (2.9: 1.57 × 0.1 × 19.1)

^{*} The data is Brother's actual test data.

S1000X1

Machine Specifications and NC Unit Specifications

	Item		\$1000X1	
CNC Unit	itom		CNC-C00	
CNC Unit	V .	(
	X axis	mm (inch)	1,000 (39.4)	
Travels	Y axis	mm (inch)	500 (19.7)	
	Z axis	mm (inch)	300 (11.8)	
	Distance between table top and sp		180~480 (7.1~18.9)	
Table	Work area size	mm (inch)	1,100 × 500 (43.3 × 19.7)	
	Max.loading capacity (uniform le	pad) kg (lbs)	300 [400 *6] (661 [881 *6])	
	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	
Spindle	Speed during tapping	min-1	MAX. 6,000	
Opinale .	Tapered hole		7/24 tapered No.30	
	BT dual contact system (BIG-PI	LUS)	Optional	
	Coolant Through Spindle (CTS)		Optional	
Feed rate	Rapid traverse rate (XYZ-area)	m/min (inch/min)	50 × 50 × 56 (1,969 × 1,969 × 2,205)	
reed rate	Cutting feed rate	mm/min (inch/min)	X, Y, Z∶1~30,000 (0.04~1,181) *7	
	Tool shank type		MAS-BT30	
	Pull stad type *4		MAS-P30T-2	
	Tool storage capacity	pcs.	14/21	
ATC unit	Max. tool length	mm (inch)	250 (9.8)	
	Max. tool diameter	mm (inch)	110 (4.3)	
	Max. tool weight *1 kg (3.0 (6.6) / Tool (TOTAL TOOL WEIGHT: 25 (55.1) for 14 tools, 35 (77.2) for 21 tools)	
	Tool selection method		Random shortcut method	
	Tool To Tool		0.8	
Tool change	Chip To Chip		1.4	
time *5	Cut To Cut		1.2	
			10,000min ⁻¹ specifications: 10.1/6.7 16,000min ⁻¹ specifications (optional): 7.4/4.9	
Electric motor	Main spindle motor(10min/cont	inuous) *2 kW	10,000min ⁻¹ high-torque specifications (optional): 12.8 / 8.8	
	Axis feed motor	kW	1.0 (X,Y), 2.0 (Z)	
	Power supply		AC V±10% 50/60Hz±1Hz	
			10,000min ⁻¹ specifications: 9.5 16,000min ⁻¹ specifications (optional): 9.5	
Power source	Power capacity (continuous)	kVA	10,000min ⁻¹ high-torque specifications (optional): 10.4	
	Air Regular air pressure	MPa	0.4~0.6 (recommended value: 0.5MPa *8)	
	supply Required flow	I /min	45	
	Height	mm (inch)	2.532 (99.7)	
Machining dimensions	Required floor space [with control		2,410×2442 [2,692] (94.9×96.1 [106.0])	
	Weight	kg (lbs)	3,300 (7,275)	
Accuracy *3	Accuracy of bidirectional axis positioning		0.006~0.020 (0.00024~0.00079)	
	Repeatability of bidirectional axis position	•	Less than 0.004 (0.00016)	
Front door	ricpoatability of bidifectional axis position	ing (100200-2.2000) ITIITI (INCN)	2doors	
	and and		Instruction Manual (1 set), anchor bolts (4 pcs.), leveling bolts (4 pcs.), machine cover (manual door)	
Standard acces	sones		Instruction ivianual (1 set), anchor boits (4 pcs.), leveling boits (4 pcs.), machine cover (manual door)	

*1. Actual tool weight differs depending on the configuration and center of gravity. The figures shown here are for reference only. *2. Spindle motor output differs depending on the spindle speed. *3. Measured in compliance with ISO standards and Brother standards. *4. Brother specifications apply to the pull studs for CTS. *5. Measured in compliance with JIS B6336-9 and MAS011-1987. *6. Acceleration must be adjusted for X and Y axes. *7. When using high accuracy mode B. *8. Regular air pressure varies depending on the machine specifications, machining program details, or use of peripheral equipment. Set the pressure higher than the recommended value.

١	NC unit specifications	
CNC model	CNC-C00	
Control axes	5 axes (X,Y,Z, two additional axes)	
Position	ing 5 axes(X,Y,Z,A,B)	
Simultaneously controlled axes Interpola	Linear: 4 axes (X,Y,Z one additional axis)	
controlled axes Interpola	Circular: 2 axes Helical/conical: 3 axes (X,Y,Z	
Least input incremen	t 0.001mm, 0.0001inch, 0.001 deg.	
Max.programmable dimensio	n ±9999.999mm, ±999.9999inch	
Display	12.1-inch color LCD	
Memory capacity	Approx.100 Mbytes (Total capacity of program and data ban	
External communication	USB memory interface, Ethernet, RS232C (optional)	
No.of registrable program	4,000 (Total capacity of program and data bank)	
Program format	NC language, conversation (changed by parameter), conversation from conversation program to NC language program available	

*Ethernet is a trademark or registered trademark of XEROX in the United States.

- *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

	Standard NC function	ns
Absolute / incremental Inch / metric	Graphic display Subprogram	(NC) Expanded workpice coordinate system
Corner C / Corner R	Herical / conical interpolation	Scaling
 Rotational transformation 	 Tool washing filter with filter 	Mirror image
Synchronized tap	clogging detection	 Menu programming
 Coordinate system setting 	 Automatic power off 	 Program compensation
Dry run	(energy saving function)	 Tool length compensation
Restart	 Servomotor off standby mode 	 Cutter compensation
 Backlash compensation 	(energy saving function)	 Macro function
 Pitch error compensation 	 Chip shower off delay 	 Local coordinate system
 Rapid traverse override 	 Automatic coolant off 	One-way positioning
Cutting feed override	(energy saving function)	 Opeation in tape mode
Alarm history (1,000 pieces)	Automatic work light off	
Startus log	(energy saving function)	(Conversation)
Machine lock	Heat expansion compensation	Operation program
Computer remote	systemII (X,Y,Z axes)	Schedule program
Built-in PLC	Tap return function	Automatic tool selection
 Motor insulation resistance measurement 	 Automatic workpiece measurement *1 	 Automatic cutting condition setting Autmatic tool length compensation
Operation log	Waveform display	setting
■ High accuracy mode AII	Operation level	 Autmatic cutter compensation setting
 Tool length measurement 	 External input signal key 	 Autmatic calculation of unknown
 Tool life management / spare tool 	High accuracy mode BI	number input
 Background editing 	(look-ahead 30blocks)	 Machining order control

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

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