

SPECIFICATIONS
OF
DOUBLE COLUMN MACHINING CENTER
MPC-3180B
(FANUC Series 30i-MODEL B)

May, 2012

TOSHIBA MACHINE CO., LTD.

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2. Machine Specifications

2.1 Standard Specifications

Specifications of the Machines	Unit	Model
		3180B
Travel		
• X-axis travel (Longitudinal movement of table)	mm	9,000
• Y-axis travel (Cross movement of spindle head)	mm	3,900
• Z-axis travel (Vertical movement of ram)	mm	900
• W-axis travel (Vertical movement of crossrail)	mm	1,600
• Distance from table top to vertical spindle nose	mm	2,440
• Distance between columns (Maximum width between column)	mm	3,100
Table		
• Table working surface	mm	2,700 × 8,000
• Table loading capacity	kg	20,000
• Table T-slot size		28 mm-wide
Spindle		
• Spindle speed range	min ⁻¹	5 ~ 3,000
• Number of spindle speed ranges		Two (2) ranges
• Type of spindle taper hole		7/24 taper No.50
• Maximum spindle torque	N·m	2,170
• Spindle bearing inner diameter	mm	5-face cutter head Vertical: 100 Horizontal: 120
Spindle ram		
• Type		Ram type
• Guideways		Supported by four (4) closed guideways.
• Section	mm	380 × 380

Specifications of the Machines		Unit	Model
			3180B
Feedrate			
• Rapid traverse rate	X-axis	m/ min	20 (stroke center) / 9 (stroke end)
	Y-axis		25 (stroke center) / 9 (stroke end)
	Z-axis		10
	W-axis		6 (special)
• Feedrate	X-axis	mm/ min	1 ~ 6,000
	Y-axis		1 ~ 6,000
	Z-axis		1 ~ 6,000
	W-axis		1 ~ 6,000 (special)
Tool			
• Type of tool shank			MAS BT50
• Type of retention knob			Optional specification
Motors			
• Spindle drive motor			AC 30 kW (25 %ED) / 22 kW (continuous rating) ("25% ED" means the maximum output when the motor revolves for 2.5 minutes and stops for 7.5 minutes at a rate of 10 minutes /1 cycle.)
• Feed motors	X-axis		AC 16 kW, αis200/2500
	Y-axis		AC 6.0 kW, αif40/3000
	Z-axis		AC 5.5 kW, αis40/4000
	W-axis		AC 6.0 kW × 2, αif40/3000
• Hydraulic pump motors			AC 4 P, 15 kW × 2
• Lubricant pump motor (Z-axis lubricant unit)			AC 4 P, 17 W
• Motors for options			Refer to the optional specifications.
• Other auxiliary motors			One (1) set

Note: Rapid traverse rate is 9 m/min within 3,000 mm from the X-axis stroke end and within 100 mm from the Y-axis stroke end.

Specifications of the Machines		Unit	Model
			3180B
Power sources			
• Electrical power supply		AC 200/220 V±10 %, 50/60 Hz ±1 Hz	
• Power capacity (including capacity for options)		150 kVA (Power supply for air compressor shall be provided separately.)	
• Compressed air to be supplied [When the optional air blower function is selected, total air quantity shall be increased to the volume listed in Item 19 (P-13).]		0.5 ~ 0.8 MPa 1 200 normal liters/min Note: Compressed air shall not contain oil, moisture and dust.	
Tank capacity			
• Hydraulic oil tank capacity	L	350 (HM32)	
• Z-axis lubricant tank capacity	L	4 (G68)	
• Gear oil mist tank capacity	L	1.7 (Shell Omala S2 G 68) Charge tank: 2 L	
• Bearing oil mist tank capacity	L	1.7 (Mobil DTE 24) × 2	
Machine size			
• Machine height		mm	7,360
• Floor space	AWC (DTC)	mm	9,900 × 29,110
• Mass of machine	AWC (DTC)	kg	150,000
Accuracy			
• Positioning accuracy		mm	0.015 per 2,000 (X- and Y-axes) 0.015 per 900 (Z-axis) 0.015 per 1,600 (W-axis)
• Repeatability		mm	±0.010
• Other accuracy as per the standard test chart (testing method & tolerances) (SKE 58676).			
Painting color			
• Customer's designated exterior painting color (Urethane painting)	Optional specification		
• Standard interior painting color	Munsell 10YR8/4		

2.2 Standard Accessories

- (1) 5-face cutter head
- (2) Automatic attachment index (AAI)
(4-position indexing by every 90° 5-face cutter head or other attachments)
- (3) Automatic tool loading/unloading device for vertical spindle and horizontal spindle
- (4) Pendant operation box with free-arm by air drive
- (5) Hydraulic unit
- (6) Hydraulic crossrail servo balancing system
(proportional to spindle head position)
- (7) Hydraulic ram balancing mechanism
- (8) Oil mist lubrication unit (for gears)
- (9) Oil mist lubrication unit (for bearings)
- (10) Telescopic bed steel cover
- (11) Telescopic column steel cover
- (12) Telescopic crossrail steel cover
- (13) Ram slideway (Z-axis) lubricant unit
- (14) Service (or maintenance) tools
- (15) Spare parts (fuses and lamps)
- (16) A plug socket (AC100 V, 5 A) is provided on the machine control unit (front side of CNC panel) to connect an external device.

3. CNC System Specifications (FANUC Series 30i-MODEL B)

3.1 Standard and Pack Specifications

(Items marked ☆ are included in the pack specifications.)

A. Controlled Axes

☆	A-1	Controlled axes
☆	A-2	Simultaneously controlled axes
☆	A-3	Synchronously operated axes
	A-4	Increment system
	A-5	Interlock
	A-6	Machine lock
	A-7	Emergency stop
	A-8	Overtravel
	A-9	Stored stroke check 1
☆	A-10	Stored stroke check 2,3
☆	A-11	Stored limit check before move
	A-12	Mirror image
	A-13	Follow-up
	A-14	Servo off

B. Operation

	B-1	Automatic operation (memory)
	B-2	MDI operation
	B-3	DNC operation with memory card (PC card adapter attached)
	B-4	Program number search
	B-5	Sequence number search
☆	B-6	Sequence number comparison and stop
	B-7	Dry run
	B-8	Single block
	B-9	Manual continuous feed (jog)
☆	B-10	Manual handle feed (No. of handles attached: 1)

☆	B-11	Handle interruption
	B-12	Incremental feed
☆	B-13	Manual numerical command

C. Interpolation Function

	C-1	Positioning
☆	C-2	Single direction positioning
	C-3	Exact stop mode
	C-4	Tapping mode
	C-5	Cutting mode
	C-6	Exact stop
	C-7	Linear interpolation
	C-8	Circular interpolation
	C-9	Dwell (second designation)
☆	C-10	Thread cutting, synchronous cutting
	C-11	Skip
	C-12	Reference position return
	C-13	Reference position return check
	C-14	2nd reference position return

D. Feed Function

	D-1	Rapid traverse rate
	D-2	Rapid traverse override
	D-3	Feed per minute
	D-4	Automatic acceleration/deceleration
	D-5	Rapid traverse bell-shaped acceleration/deceleration
	D-6	Feedrate override
	D-7	Jog override
	D-8	Override cancel
☆	D-9	External deceleration
	D-10	Linear acceleration/deceleration after cutting feed interpolation

E. Program Input

	E-1	Tape code
	E-2	Control in/out
	E-3	Optional block skip (1 pc.)
	E-4	Maximum programmable dimension
	E-5	Program file name
	E-6	Sequence number
	E-7	Absolute/incremental programming
	E-8	Decimal point programming /pocket calculator type decimal point programming
	E-9	Plane selection
	E-10	Coordinate system setting
	E-11	Automatic coordinate system setting
☆	E-12	Workpiece coordinate system
☆	E-13	Workpiece coordinate system preset
☆	E-14	Addition of workpiece coordinate system (Addition to Item 5-12 above)
	E-15	Manual absolute on and off
	E-16	Programmable data input
	E-17	Programmable parameter input
	E-18	Subprogram call (max. ten (10) levels of nesting)
☆	E-19	Custom macro
☆	E-20	Addition of custom macro common variables
☆	E-21	Canned cycle for drilling
	E-22	Circular interpolation by R programming
☆	E-23	Automatic corner override
☆	E-24	Programmable mirror image
	E-25	Plane conversion

F. Auxiliary and Spindle Functions

	F-1	Auxiliary function
	F-2	Auxiliary function lock
	F-3	Spindle speed function (S-code output)
	F-4	Spindle override
☆	F-5	Spindle orientation

G. Tool function / Tool Compensation

	G-1	Tool function
☆	G-2	Tool offset pairs
☆	G-3	Tool offset memory C
	G-4	Tool length offset
☆	G-5	Tool offset
☆	G-6	Tool radius and tool nose radius compensation
	G-7	Tool length measurement

H. Accuracy Compensation Function

	H-1	Backlash compensation
	H-2	Backlash compensation for each rapid traverse and cutting feed
	H-3	Smooth backlash compensation
☆	H-4	Stored pitch error compensation
☆	H-5	Inclination compensation

I. Editing Operation

☆	I-1	Part program storage size
☆	I-2	Number of registrable programs expansion 1
	I-3	Part program editing
	I-4	Program protect
☆	I-5	Background editing (BG editing)

J. Setting and Display

	J-1	Current position display
	J-2	Program comment display
☆	J-3	Parameter setting and display
	J-4	Alarm display
	J-5	Alarm history display
	J-6	Operation history display
	J-7	Run hour and parts count display
	J-8	Actual cutting feedrate display
	J-9	Operating monitor screen
☆	J-10	Multi-language display
	J-11	Data protection key
	J-12	Erase screen display
	J-13	Help function
	J-14	Self-diagnosis function
	J-15	Periodic maintenance screen
	J-16	Power consumption monitor

K. Data Input/Output

☆	K-1	Reader/punch interface 1 (Channel 1: RS232C)
	K-2	Memory card input/output
	K-3	USB input/output
	K-4	Screen hard copy

L. Interface Function

L-1	Embedded ethernet
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M. Others

☆	M-1	Display unit
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3.2 Optional Specifications

A. Controlled Axes

No.	Function	Required/ Not required
A-1	Dual position feedback	Attached
A-2	Inch/metric conversion	-
A-3	Unexpected disturbance torque detection function	Required
A-4	Dual check safety	Required

B. Operation

B-1	Program restart	Required
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C. Interpolation Function

C-1	Helical interpolation	Required
C-2	Normal direction interpolation	Required
C-3	General purpose retract	Required

E. Program Input

E-1	Addition of optional block skip (9 pc.)	Required
E-2	Optional chamfering corner R	Required
E-3	Scaling	Required
E-4	Coordinate system rotation	Required
E-5	3-dimensional coordinate system conversion	Attached

F. Auxiliary and Spindle Function

F-1	Rigid tap	Required
F-2	Cs contouring control	Required

G. Tool Function / Tool Compensation

No.	Function	Required/ Not required
G-1	Tool offset pairs 999-pairs	Required
G-2	Tool pair for tool management function 1000 pairs	-
G-3	Tool life management	Required
G-4	Addition of tool pairs for tool life management	-
G-5	Tool management function	-

H. Accuracy Compensation Function

H-1	Straightness compensation	Required
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I. Editing Operation

I-1	Part program storage size	512K byte	-
		1M byte	-
		2M byte	-
		4M byte	Required
		8M byte	-
I-2	Number of registrable programs expansion 2		Required
I-3	Machining time stamp		Required

L. Interface Function

L-1	Fast Ethernet	-
L-2	FOCAS2 / HSSB PORT2	-
L-3	HSSB interface	Required