Nidec
All for dreams

NIDEC OKK CORPORATION
8-10, KITA-ITAMI, ITAMI
HYOGO 664-0831 JAPAN
International Sales Department
TEL:(81)72-771-1143
www.nidec.com/en/nidec-okk/
E-mail:nokk.ovsd@nidec.com

NIDEC OKK A DIVERSIFIED MANUFACTURER OF MACHINE TOOLS
Specializes In:
Machining centers
Graphite cutting machining centers
Grinding centers
CNC Milling machines
Conventional milling machines
Total die and mold making systems
Flexible manufacturing cells and systems

NOTE :
NIDEC OKK reserves the right to change the information contained in this brochure without notice.
NIDEC OKK is not responsible to make changes to previously sold machines or accessories.
The machines in the photographs of this brochure may include optional accessories.

The export of this product is subject to an authorization from the government of exporting country.
Check with the government agency for authorization.

NIDEC OKK USA CORPORATION
100 REGENCY DRIVE, GLENDALE HEIGHTS, IL 60139 USA
TEL:(1)630-924-9000
FAX:(1)630-924-9010

NIDEC OKK EUROPE GmbH
HANSEMANNSTR, 33 41468 NEUSS GERMANY
TEL:(49)2131-29868-0
FAX:(49)2131-29868-41

NIDEC OKK Machinery (THAILAND) Co., Ltd.
KUMTHORN HOLDING BUILDING 2nd FLOOR 897-897/1 Rama 3 Road, Bangpongpang, YANNAWA, BANGKOK 10120 THAILAND
TEL:(66)2-683-2160-2
FAX:(66)2-683-2163

NIDEC OKK (SHANGHAI) CO., LTD.
12F, TOWER B, 100 ZUNYI ROAD, CHANG NING DISTRICT, SHANGHAI, CHINA
TEL:(86)21-62700930
FAX:(86)21-62700931

Printed with eco-friendly vegetable ink.

Printed in Japan
22.07.1M(F)No.2.0

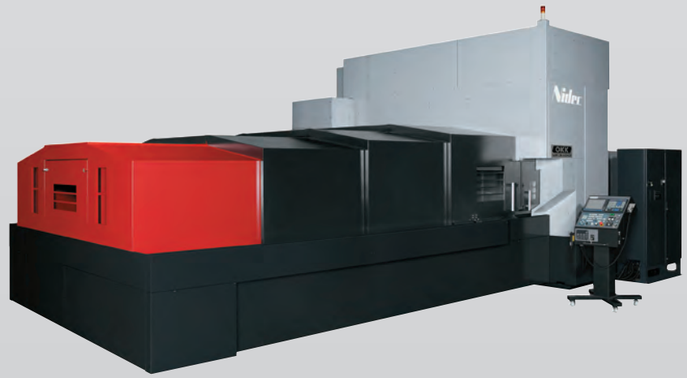
VP SERIES

Nidec
All for dreams

High-speed and High-accuracy
Hyper Machining Center

VP SERIES

VP1200
VP1800
VP2200
VP3100



www.nidec.com/en/nidec-okk/

NIDEC OKK CORPORATION

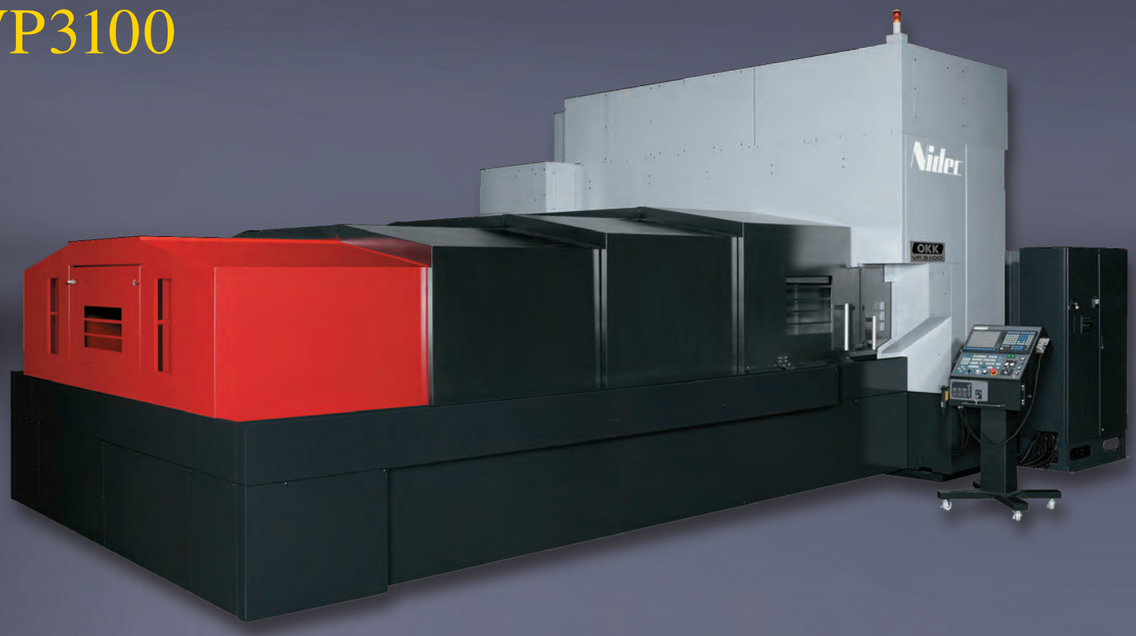
High speed! High accuracy! Large-sized hyper machining center for high efficiency!

Many variations such as the grinding center and the graphite machining center.

VP1200 / VP1800

VP1200-30L / VP2200

VP3100

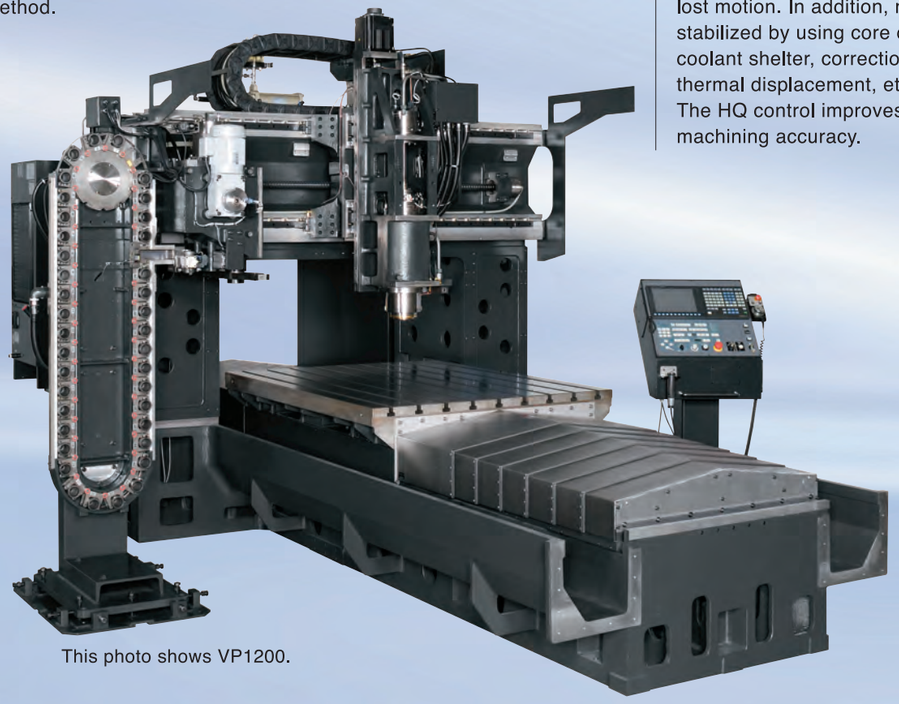


FEATURE

High-speed and High-accuracy Hyper Machining Center

Highly rigid structure

Machines have a box-shaped structure to provide high rigidity and accuracy. The guideways of each axis have linear roller guides. The ball screws are supported by using the double anchoring method.



This photo shows VP1200.

High accuracy specification

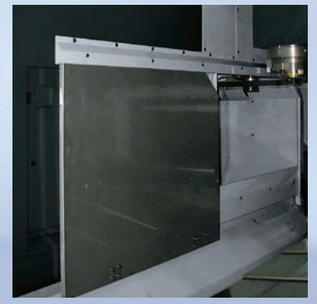
The linear roller guides improve the fine feed property and circular cutting accuracy.
The double anchoring method helps minimize lost motion. In addition, machining accuracy is stabilized by using core chilled ball screws, a coolant shelter, correction of spindle head thermal displacement, etc.
The HQ control improves and stabilizes the machining accuracy.

Great chip processing

The entire enclosure and the ATC shutter are in the standard specification to prevent coolant and chips from splashing outside. The structure of the table axis movement allows for thorough discharge of chips from the machine through the two* chip conveyors installed on both sides of the table.
The structure is excellent for high volume machining of aluminum parts.

*VP3100 has an added chip conveyor to the center, making a total of 3.

This photo shows VP1200.



12000-min^{-1} spindle is the standard specification

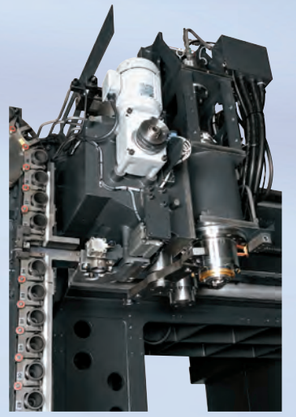
The machine has a motorized spindle (MS) that is integrated with a high-powered motor which improves the cutting performance dramatically.
A high-speed of 12000-min^{-1} can be obtained in just 1.5 seconds (high-power specification) from the stopped position.
You can also select the optional high-speed 20000-min^{-1} spindle with the high-power 37/26/22-kW (50/35/30HP) spindle.

Perfect Solution for thermal displacement

To control thermal displacement, the machine has ball screws with forced core cooling structure to minimize thermal displacement caused by the high-speed axial movements. The standard specification coolant shelter prevents the main body structure from making direct contact with coolant.

Stable high-speed operations of Nidec OKK's unique tool changer

Nidec OKK's unique automatic tool changer (ATC) has a completely synchronized mechanism for the operations between the ATC and the spindle.
It performs the high-speed tool change in 1.2-second tool changing time for tool-to-tool and 5.5-second (VP1200) / 7.5-second (VP1800) / 8.5-second (VP2200) for cut-to-cut.



Wide selection of the number of storable tools

The 40-tool magazine included in the standard specification, and 60-, 80- and 120-tool magazines are optional specifications.

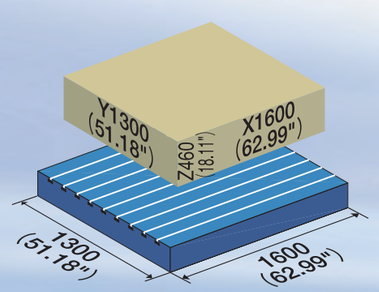
Specifications for various workpieces and large cutting area

VP1200

Rapid traverse rate
48m/min (1890 ipm) (X)
48m/min (1890 ipm) (Y)
36m/min (1417 ipm) (Z)

Spindle start-up time
1.5 seconds* (0 → 12000min^{-1})

Tool exchange time
1.2 seconds (tool-to-tool)
5.5 seconds (cut-to-cut)

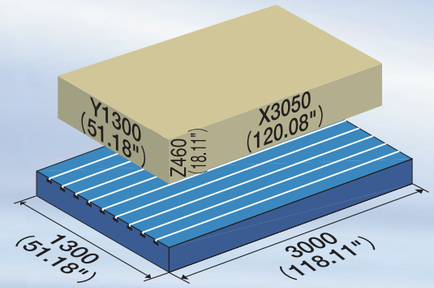


VP1200-30L

Rapid traverse rate
16m/min (630 ipm) (X)
48m/min (1890 ipm) (Y)
36m/min (1417 ipm) (Z)

Spindle start-up time
1.5 seconds* (0 → 12000min^{-1})

Tool exchange time
1.2 seconds (tool-to-tool)
5.5 seconds (cut-to-cut)

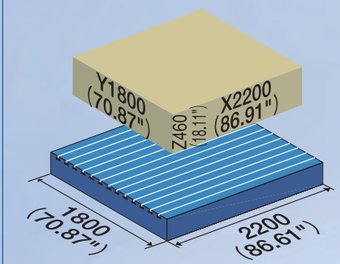


VP1800

Rapid traverse rate
24m/min (945 ipm) (X)
24m/min (945 ipm) (Y)
36m/min (1417 ipm) (Z)

Spindle start-up time
1.5 seconds* (0 → 12000min^{-1})

Tool exchange time
1.2 seconds (tool-to-tool)
7.5 seconds (cut-to-cut)

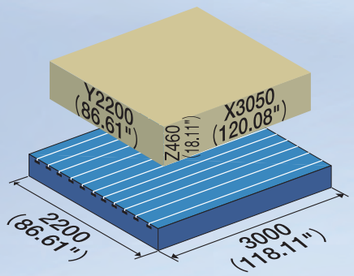


VP2200

Rapid traverse rate
16m/min (630 ipm) (X)
16m/min (630 ipm) (Y)
36m/min (1417 ipm) (Z)

Spindle start-up time
1.5 seconds* (0 → 12000min^{-1})

Tool exchange time
1.2 seconds (tool-to-tool)
8.5 seconds (cut-to-cut)

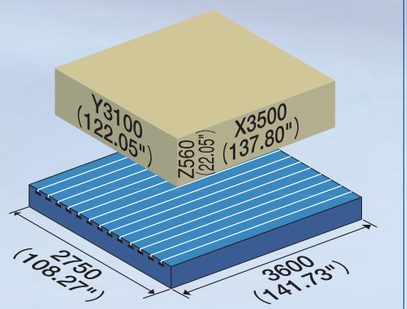


VP3100

Rapid traverse rate
12m/min (472 ipm) (X)
12m/min (472 ipm) (Y)
32m/min (1260 ipm) (Z)

Spindle start-up time
1.5 seconds* (0 → 12000min^{-1})

Tool exchange time
3.2 seconds (tool-to-tool)
21 seconds (cut-to-cut)



＊: High-power specification

Accuracy

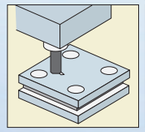
■Positioning accuracy (Nidec OKK tolerance)

mm (in)

Item	VP1200	VP1200-30L	VP1800	VP2200	VP3100
Positioning accuracy	±0.0050 (0.00020")/XY ±0.0020 (0.00008")/Z	±0.0050 (0.00020")/XY ±0.0020 (0.00008")/Z	±0.0050 (0.00020")/XY ±0.0020 (0.00008")/Z	±0.0050 (0.00020")/XY ±0.0020 (0.00008")/Z	±0.0050 (0.00020")/XY ±0.0020 (0.00008")/Z
Repeated positioning accuracy	±0.0020 (0.00008")/XY ±0.0010 (0.00004")/Z	±0.0020 (0.00008")/XY ±0.0010 (0.00004")/Z	±0.0020 (0.00008")/XY ±0.0010 (0.00004")/Z	±0.0020 (0.00008")/XY ±0.0010 (0.00004")/Z	±0.0020 (0.00008")/XY ±0.0010 (0.00004")/Z

■Positioning machining accuracy

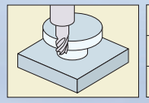
mm (in)



Item	VP1200		VP1200-30L		VP1800		VP2200		VP3100	
	Tolerance	Actual value example	Tolerance	Actual value example	Tolerance	Actual value example	Tolerance	Actual value example	Tolerance	Actual value example
Axis direction	0.015 (0.00059")	0.002 (0.00008")	0.015 (0.00059")	0.002 (0.00008")	0.015 (0.00059")	0.002 (0.00008")	0.015 (0.00059")	0.004 (0.00016")	0.015 (0.00059")	0.003 (0.00012")
Diagonal direction	0.015 (0.00059")	0.002 (0.00008")	0.015 (0.00059")	0.004 (0.00016")	0.015 (0.00059")	0.003 (0.00012")	0.015 (0.00059")	0.002 (0.00008")	0.015 (0.00059")	0.003 (0.00012")
Hole diameter error	0.010 (0.00039")	0.002 (0.00008")	0.010 (0.00039")	0.003 (0.00012")	0.010 (0.00039")	0.002 (0.00008")	0.010 (0.00039")	0.003 (0.00012")	0.010 (0.00039")	0.002 (0.00008")

■Circular cutting accuracy (Circularity)

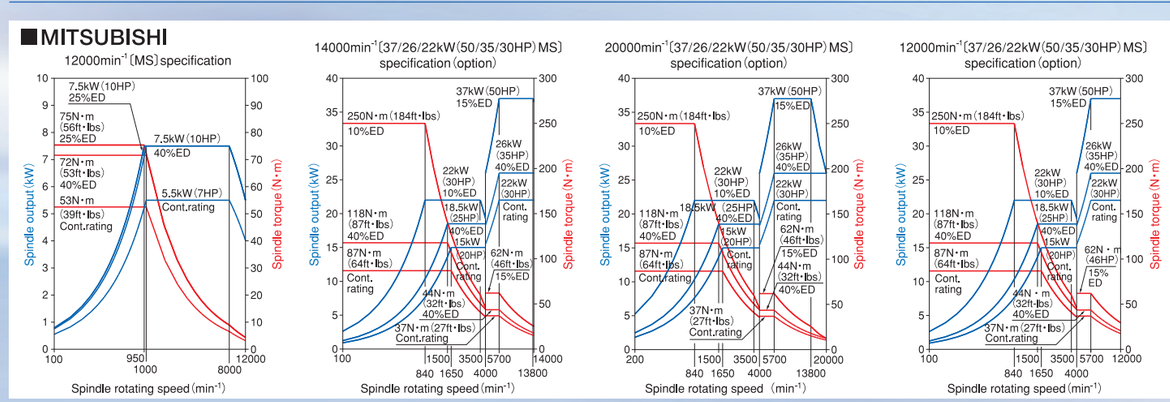
mm (in)



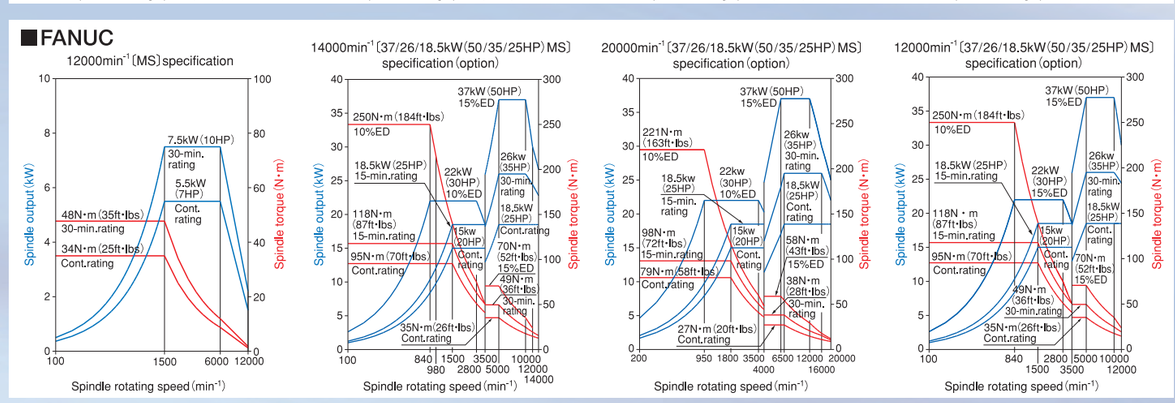
Item	VP1200	VP1200-30L	VP1800	VP2200	VP3100
Tolerance	0.0075 (0.00030")	0.0075 (0.00030")	0.0075 (0.00030")	0.0075 (0.00030")	0.0075 (0.00030")
Actual value example	0.0032 (0.00013")	0.0043 (0.00017")	0.0034 (0.00013")	0.0037 (0.00015")	0.0036 (0.00014")

Notes:
1. The data shown here as an example are based on the short-time machining.
The values may vary with continuous machining.
2. The data shown here as an example were obtained under Nidec OKK's in-house cutting test conditions.
The values may vary based on cutting tools and fixtures.

■MITSUBISHI



■FANUC



A-axis specification machine
Travel in the A-axis direction:360°
Size of table's working surface:
1350mm (53.15") × 610mm (24.02")
Max. workpiece mass loadable on table:
200kg (441 lbs)

VP1200-30L
X-axis stroke: 3050mm (120.08")

●Machine Main Body Main Specification

Item		VP1200	VP1200-30L	VP1800		VP2200	VP3100
Travel on X axis (Table's longitudinal movementt)	mm	1600 (62.99")	3050 (120.08")	2200 (86.61")		3050 (120.08")	3500 (137.80")
Travel on Y axis (Spindle head's crosswise movement)	mm	1300 (51.18")		1800 (70.87")		2200 (86.61")	3100 (122.05")
Travel on Z axis (Spindle head's vertical movement)	mm	460 (18.11")		460 (18.11")		460 (18.11")	560 (22.05")
Distance from table top surface to spindle nose	mm	100 to 560 (3.94" to 22.05")		100 - 560 (3.94" - 22.05")		100- 560 (3.94" - 22.05")	100 - 660 (3.94" - 25.98")
Distance from column front to spindle center	mm	635 (25.00")		635 (25.00")		520 (20.47")	520 (20.47")
Size of table's working surface (X-axis direction × Y-axis direction)	mm	1600 × 1300 (62.99" × 51.18")	3000 × 1300 (118.11" × 51.18")	2200 × 1800 (86.61" × 70.87")		3000 × 2200 (118.11" × 86.61")	3600 × 2750 (141.73" × 108.27")
Max. workpiece mass loadable on table	kg	2000 (4409 lbs)	3000 (6614 lbs)	3000 (6614 lbs)		3000 (6614 lbs)	4000 (8818 lbs)
Table's working surface configuration (T-slot nominal dimension × spacing × number of T slots)	mm	22 (0.87") × 140 (5.51") × 9 tools		22 (0.87") × 140 (5.51") × 13 tools		22 (0.87") × 200 (7.87") × 11 tools	22 (0.87") × 200 (7.87") × 13 tools
Distance from floor to table's working surface	mm	900 (35.43")	1000 (39.37")	900 (35.43")		1000 (39.37")	1100 (43.31")
Spindle rotating speed	min^{-1}	100 - 12000		100 - 12000		100 - 12000	100 - 12000
Number of spindle rotating speeds		Stepless speed change		Stepless speed change		Stepless speed change	Stepless speed change
Spindle nose (nominal number)		7/24-tapered No.40		7/24-tapered No.40		7/24-tapered No.40	7/24-tapered No.40
Spindle bearing bore diameter	mm	φ65 (2.56")		φ65 (2.56")		φ65 (2.56")	φ65 (2.56")
Rapid traverse rate	m/min	X,Y:48 (1,890ipm), Z:36 (1,417ipm)	X:16 (630ipm), Y:48 (1,890ipm), Z:36 (1,417ipm)	X, Y:24 (945ipm), Z:36 (1,417ipm)		X, Y:16 (630ipm), Z:36 (1,417ipm)	X, Y:12 (472ipm), Z:32 (1,260ipm)
Cutting feed rate※1	mm/min	1 - 36000 (0.04ipm - 1,417ipm)	1 - 16000 (0.04ipm - 630ipm)	1 - 24000 (0.04ipm - 945ipm)		1 - 16000 (0.04ipm - 630ipm)	1 - 12000 (0.04ipm - 472ipm)
Automatic Tool Changer (ATC)							
Tool shank (nominal number)		JIS B 6339 BT40		JIS B 6339 BT40		JIS B 6339 BT40	JIS B 6339 BT40
Pull stud (nominal number)		MAS 403 P40T-1		MAS 403 P40T-1		MAS 403 P40T-1	MAS 403 P40T-1
Number of storable tools		40		40		40	40
Maximum tool diameter	mm	φ82 (3.23")		φ82 (3.23")		φ82 (3.23")	φ82 (3.23")
Max. tool diameter (with no tools in adjoining pots)	mm	φ125 (4.92")		φ125 (4.92")		φ125 (4.92")	φ125 (4.92")
Max. tool length (from the gauge line)	mm	300 (11.81")		300 (11.81")		300 (11.81")	300 (11.81")
Max. tool mass	kg	7 (15 lbs)		7 (15 lbs)		7 (15 lbs)	7 (15 lbs)
Tool selection method		Address fixing method		Address fixing method		Address fixing method	Address fixing method
Tool exchange time (tool-to-tool)	s	1.2		1.2		1.2	3.2
Tool exchange time (cut-to-cut)	s	5.5		7.5		8.5	21
Motor							
Spindle motor MITSUBISHI (40%ED rating/continuous rating) FANUC (30min rating/continuous rating)	kW	AC 7.5/5.5 (10HP/7HP)		AC 7.5/5.5 (10HP/7HP)		AC 7.5/5.5 (10HP/7HP)	AC 7.5/5.5 (10HP/7HP)
Feed motors	kW	MITSUBISHI X : 7.0 (9.4HP) Y, Z : 3.5 (4.7HP) FANUC X : 9.0 (12.1HP) Y, Z : 4.5 (6HP)		MITSUBISHI X:7.0 (9.4HP) Y, Z:3.5 (4.7HP) FANUC X:9.0 (12.1HP) Y, Z:4.5 (6HP)		MITSUBISHI X:9.0 (12.1HP) Y, Z:3.5 (4.7HP) FANUC X:9.0 (12.1HP) Y, Z:4.5 (6HP)	MITSUBISHI X:9.0 (12.1HP)×2 Y, Z:3.5 (4.7HP) FANUC X:6.0 (8HP)×2 Y, Z:4.5 (6HP)
Motor for coolant pump (50 / 60 Hz)	kW	0.75 / 1.1 (1HP / 1.5HP) × 2		0.75/1.1 (1HP/1.5HP) × 2		0.75/1.1 (1HP/1.5HP) × 2	0.75/1.1 (1HP/1.5HP) × 2
Motor for spindle head cooling pump	kW	1.5 + 0.75 (2HP + 1HP)		1.5 + 0.75 (2HP + 1HP)		1.5 + 0.75 (2HP + 1HP)	1.5 + 0.75 (2HP + 1HP)
Motor for conveyor	kW	0.1 (0.1HP) × 2 (Coil type)	0.4 (0.5HP) × 2 (Coil type)	0.1 (0.1HP) × 2 (Coil type)		0.4 (0.5HP) × 2 (Coil type)	0.2 (0.3HP) × 2 (Hinged type)
Motor for ATC	kW	0.75 (1HP)		0.75 (1HP)		0.75 (1HP)	0.75 (1HP)
Motor for magazine	kW	MITSUBISHI 1.5 (2.0HP) FANUC 1.4 (1.9HP)		MITSUBISHI 1.5 (2.0HP) FANUC 1.4 (1.9HP)		MITSUBISHI 0.5 (0.7HP) FANUC 1.4 (1.9HP)	MITSUBISHI 0.5 (0.7HP) FANUC 1.4 (1.9HP)
Required power sources							
Power supply	kVA	MITSUBISHI 27 FANUC 28	MITSUBISHI 28 FANUC 28	MITSUBISHI 27 FANUC 28		MITSUBISHI 29 FANUC 28	FANUC 36
Supply voltage※2	V	AC200 ± 10% AC220 ± 10%		AC200 ± 10% AC220 ± 10%		AC200 ± 10% AC220 ± 10%	AC200 ± 10% AC220 ± 10%
Supply frequency	Hz	50 / 60 ± 1 60 ± 1		50 / 60 ± 1 60 ± 1		50 / 60 ± 1 60 ± 1	50 / 60 ± 1 60 ± 1
Compressed air supply pressure※3	MPa	0.5 (73psi)		0.5 (73psi)		0.5 (73psi)	0.5 (73psi)
Compressed air supply flow rate※3	L/min (ANR)	160 (42gpm)	160 (42gpm)	160 (42gpm)		160 (42gpm)	160 (42gpm)
Spindle cooling oil tank capacity	L	70 (18.5gal)		70 (18.5gal)		70 (18.5gal)	70 (18.5gal)
Coolant tank capacity	L	500 (132 gal)		600 (159gal)		900 (238 gal)	950 (251gal)
Machine height (from the floor surface)	mm	2800 (110.24")	2900 (114.17")	2800 (110.24")		2900 (114.17")	3415 (134.45")
Floor space required for operation (width × depth)	mm	5800×4067 (228.35"×160.12")	9440×4864 (371.65"×191.50")	7450 × 4622 (293.31" × 181.97")		9040 × 5237 (355.91" × 206.18")	10997 × 6203 (432.95" × 244.21")
Required floor space incl. maintenance area (width × depth)	mm	6800×6100 (267.72"×240.16")	10500×5900 (413.39"×232.28")	8500 × 5700 (334.65" × 224.41")		11000 × 6200 (433.07" × 244.90")	12000 × 7200 (472.44" × 283.46")
Machine mass	kg	19000 (41877 lbs)	22000 (48501 lbs)	25000 (55115 lbs)		32000 (70547 lbs)	41000 (90388 lbs)
Operating environment temperature	℃	5 - 40		5 - 40		5 - 40	5 - 40

※1 : With HQ or hyper HQ control active
※2 : In cases where the supply voltage is 220VAC, only 60-Hz supply frequency is available.
※3 : Purity of the supplied air should be equal or higher than the level 3, 5 and 4 specified in ISO 8573-1/JIS B 8392-1.

●Standard Accessories

Name		Q'ty
Lighting system (TWO LED Lamps)		1 set
Coolant unit (Separately installed coolant tank)		1 set
Entire machine cover (Splash guard)		1 set
Slideway protection covers for X and Y axes		1 set
Door interlock control		1 set
ATC shutter		1 set
Spindle head cooling oil temperature controller		1 set
Automatic grease lubrication unit		1 set
Chip conveyor for discharge from the side	Coil-type (VP1200, 1800, 2200)	2 sets
	Hinged-type (VP3100)	3 sets
Air blower		1 set
Signal lamp (three-lamp type with buzzer)		1 set
Workpiese flushing gun		1 set
Leveling block		1 set
Foundation parts		1 set
Parts for machine transfer		1 set
Automatic power-off unit (for M02/M30)		1 set
Electrical spare parts (fuses)		1 set
Instruction manuals		2 sets
Electrical instruction manuals (including electrical diagrams)		1 set

●Special Accessories for Main Body (Option)

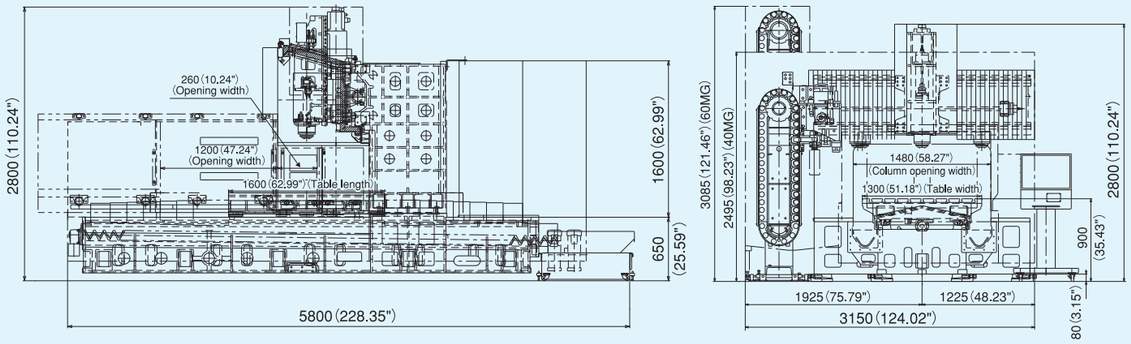
Item	Specification
High-speed spindle	14000min^{-1} MITSUBISHI 37/26/22kW (50/35/30HP) FANUC 37/26/18.5kW (50/35/25HP) 20000min^{-1} MITSUBISHI 37/26/22kW (50/35/30HP) FANUC 37/26/18.5kW (50/35/25HP)
Increased Z-axis stroke	560mm (22.05")
Compatibility with two-face locking tool	BBT, HSK
High-torque spindle drive motor	12000min^{-1} MITSUBISHI 37/26/22kW (50/35/30HP) FANUC 37/26/18.5kW (50/35/25HP)
Tool storage capacity	60/80/120 tools
Linear scale	XY axis, XYZ axis
Tool break detection with limit switches	
Lift-up type chip conveyor	Scraper type / Scraper type with floor magnet / Drum type for aluminum chips
Compatibility with oil-hole holder	Nikken / BIG / Others※1
Compatibility with through-spindle	2 MPa (290psi) / 7 MPa (1,015psi) / Air
Bond for foundation work	Bond anchoring method
Grease cartridge for automatic grease	
lubrication unit	
Oil mist blower	
Signal lamp	Two-lamp type / Three-lamp type
Splash guard automatic opening / closing	
NC rotary table	Rotary table type※1
Sub table	
Touch sensor system T0 (manual)	Workpiece measurement, tool length / diameter measurement
Touch sensor system T1 (automatic)	Workpiece measurement, tool length / tool break detection

※1. Let us know the manufacturer and the model.

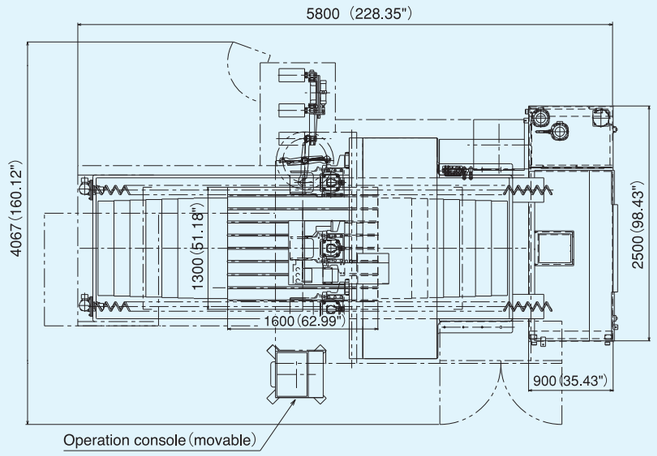
●Standard Specification

Machine Main Body's Main Dimensions

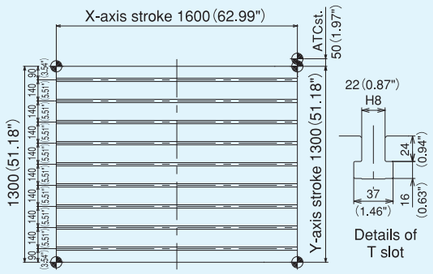
VP1200



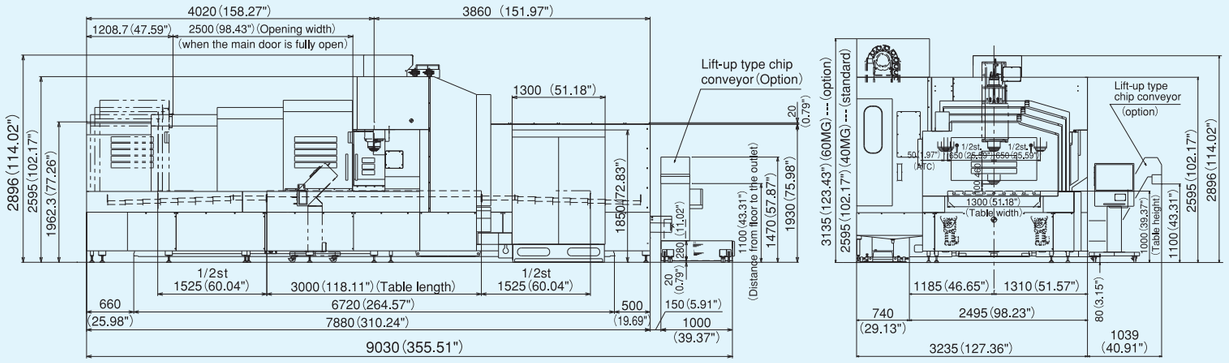
Floor layout drawing

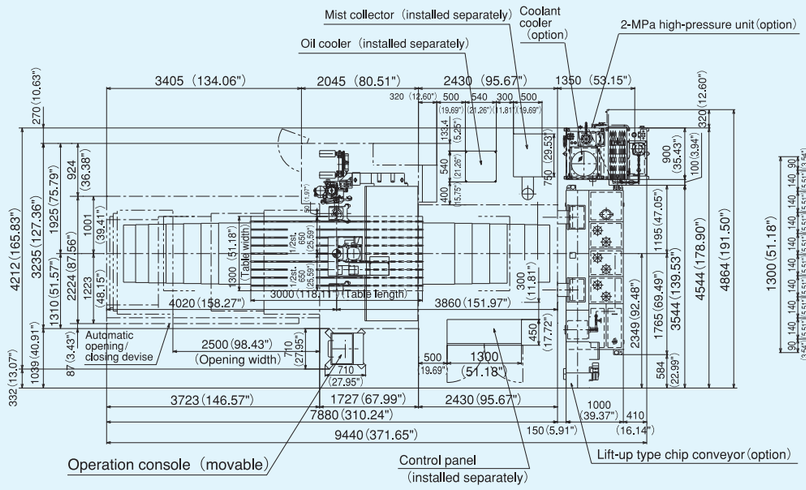


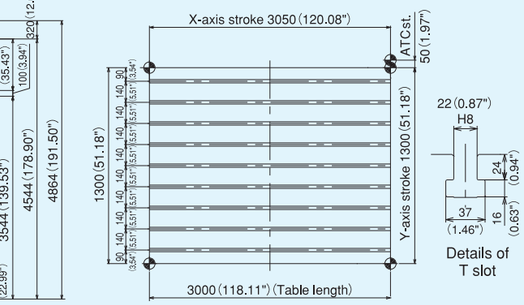
Table



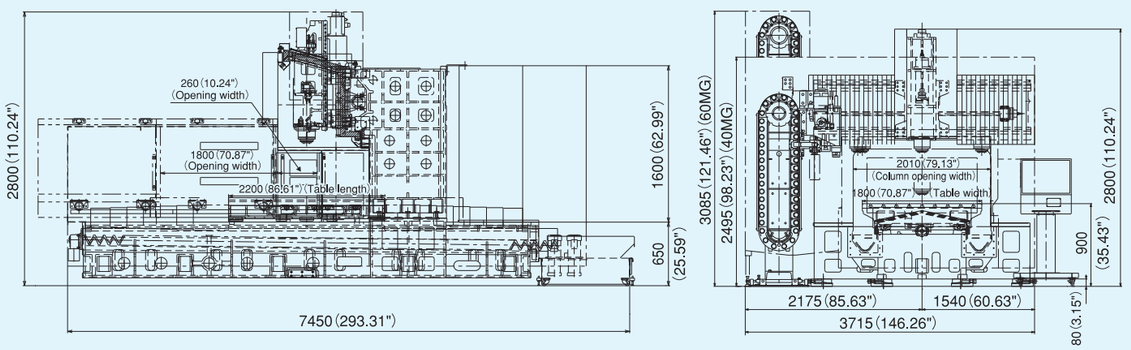
VP1200-30L

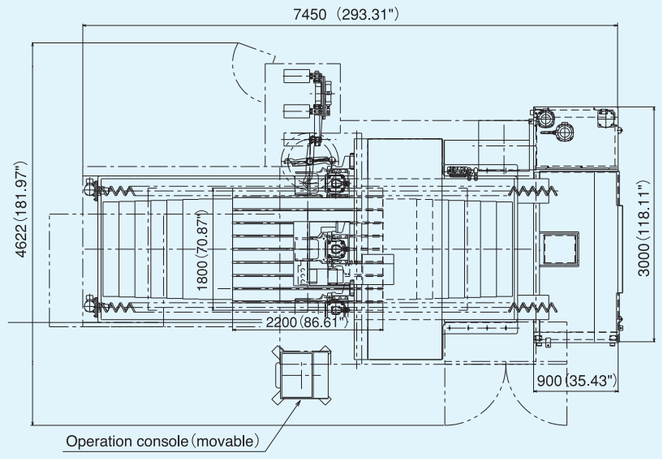


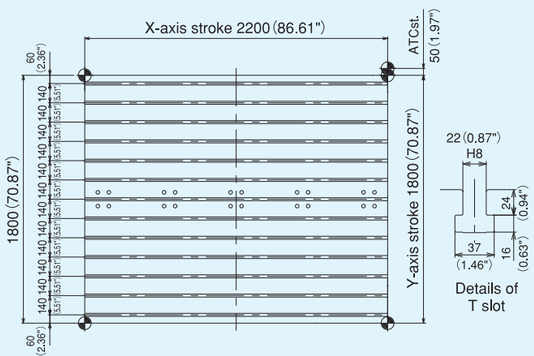




VP1800



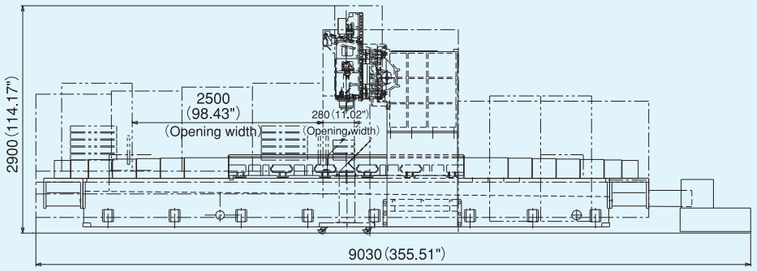


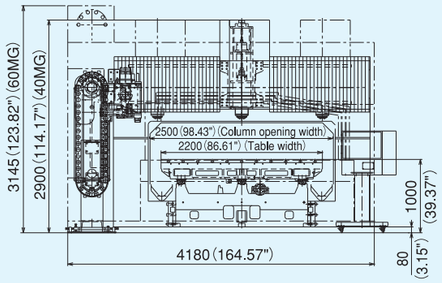


●Standard Specification

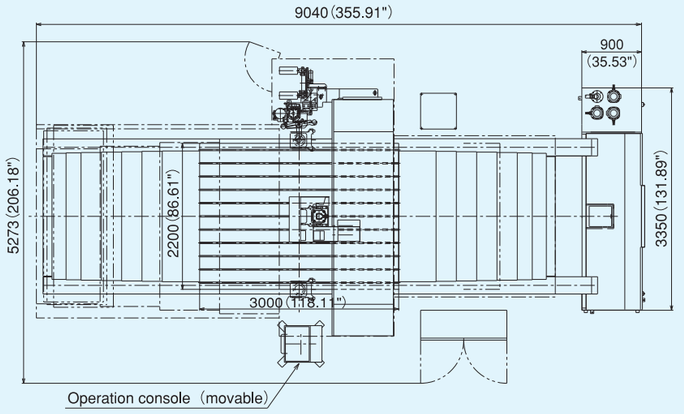
Machine Main Body's Main Dimensions

VP2200

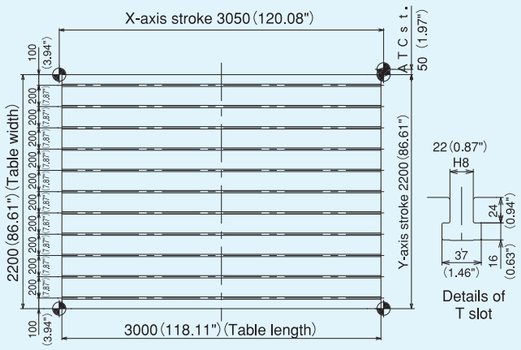




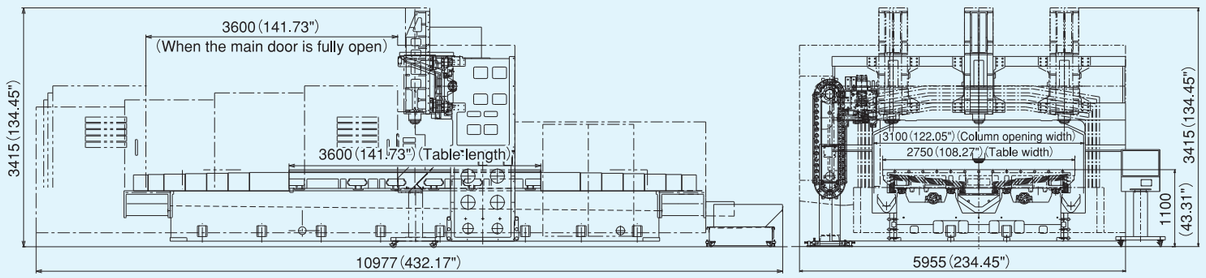
Floor layout drawing

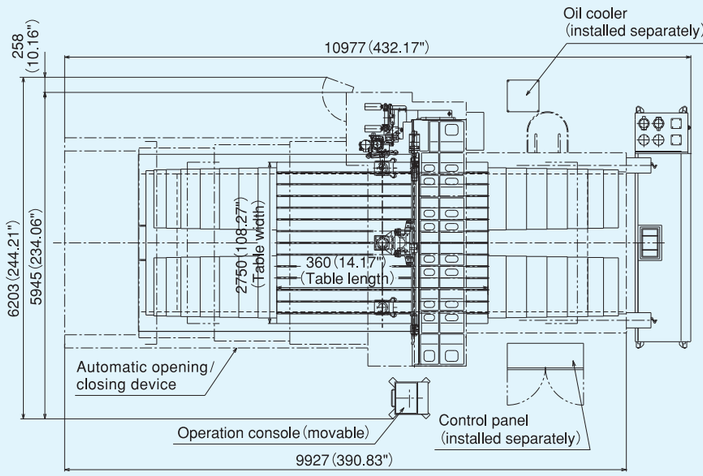


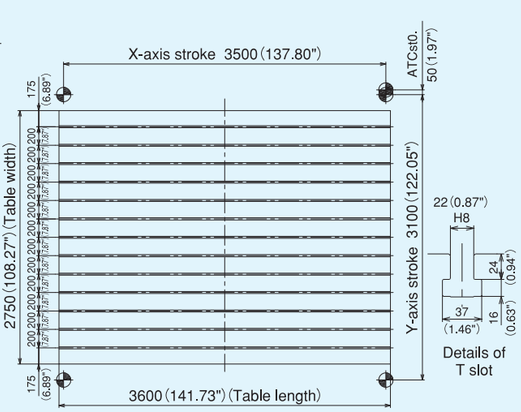
Table



VP3100







CONTROLLER

N830 (Windows 8-installed Open CNC)

Standard Specification

No. of controlled axes: 3 axes (X, Y, Z)
No. of simultaneously controlled axes: 3 axes
Least input increment: 0.001 mm / 0.0001"
Max. programmable dimension:
±99999.999 mm / ±39370.0787"
Inch / Metric conversion: G20/G21
Program format: Meldas standard format
(M2 / M0 formatneeds to be instructed separately.)
Decimal point input Ⅰ/Ⅱ
Absolute / Incremental programming: G90/G91
Program code: ISO / EIA automatic discrimination
Least control increment: 1nm
Positioning: G00
Linear interpolation: G01
Circular interpolation: G02 / G03
(Including designation of circular arc radius)
Unidirectional positioning
Helical interpolation
Cutting feed rate: 5.3-digit F-code, direct command
One digit F-code feed
Rapid traverse override: 0 / 1 / 10 / 25 / 50 / 100%
Cutting feed rate override: 0 to 200% (every 10%)
Feed rate override cancel: M49 / M48: Cancel
Rigid tap cycle: G74, G84
Manual handle feed:
Least input increment: ×1×10×100／graduation
Dwell: G04
Part program storage capacity: 1280m [500KB]
No. of registered programs: 1000
Part program editing
Background editing: Possible to program or edit the machining program while NC machining is executed.
Buffer modification
Color touch-panel display (15" LCD/QWERTY key MDI)
Integrating time display
Clock function
User definable key
MDI (Manual Data Input) operation
Menu list
Parameter / Operation guidance
Alarm guidance
Ethernet interface
SD card / USB memory interface
Display unit's internal high speed program server operation
SD card / USB memory operation
Spindle function:
Direct designation of spindle speed with 5-digit S-code
Spindle speed override: 50 to 150% (every 5%)
Tool function: Direct designation of called tool number with 4-digit T-code
ATC tool registration
Miscellaneous function: Designation of miscellaneous function with 3-digit M-code
Multiple M-codes in 1 block: 3 codes can be designated simultaneously in one block (Max 20 settings)
Tool length offset: G43, G44, G49: Cancel
Tool position offset: G45 through G48
Cutter compensation: G38 through G42
Tool offset sets: Total 200 sets
Tool offset memory Ⅱ:
tool geometry (length / radius) and wear offset
Machine coordinate system: G53
Coordinate system setting: G92
Automatic coordinate system setting
Workpiece coordinate system: G54 through G59
Local coordinate system: G52
Manual reference position return
Automatic reference position return
2nd to 4th reference position return:
G30P2 through P4
Reference position return check: G27
Optional block skip (9 in total) : /n (n:1 through 9)
Single block
Dry run
Machine lock
Z-axis feed cancel
Miscellaneous function lock
3D solid program check
Graphic display check
Program number search
Sequence number search
Sequence number comparison and stop
Program restart function
Cycle start
Feed hold
Manual absolute
(ON / OFF setting with PLC parameter)
Auto restart
Program stop: M00
Optional stop: M01
Machining time computation
Automatic operation handle interruption
Manual numerical command
Sub program control: M98, M99
Canned cycle: G73, G74, G76, G81 through G89, G80: Cancel
Linear angle designation
Circular cutting: G12, G13
Parameter mirror image
Programmable mirror image:
G51.1, G50.1: Cancel
User macro: Including macro interruption
Variable command: Total 700 sets
Programmable coordinate system rotation:
G68, G69: Cancel
Parameter coordinate system rotation
Corner chamfering / corner R: Insert into straight line-straight line / straight line-circle block
Programmable data input: G10, G11: Cancel
Automatic corner override
Exact stop mode
Playback
Memory pitch error compensation
Backlash compensation
Skip function: G31
Manual tool length measurement
Tool life management Ⅱ: Additional tool life management sets: 200 in total
External search
Emergency stop
Data protection key
NC alarm display
Machine alarm message
Stored stroke limit Ⅰ/Ⅱ
Load monitor
Self-diagnosis
Absolute position detection

Optional Specification

Addition of additional one axis:
name of axis (A, B, C, U, V, W)
Addition of additional two axes:
name of axis (A, B, C, U, V, W) Note
Simultaneously controlled axes: 4 axes
Simultaneously controlled axes: 5 axes Note
Least input increment: 0.0001 mm / 0.00001 inch
Program format: M2 / M0 format
Spiral/Conical interpolation
Cylindrical interpolation
Hypothetical axis interpolation
NURBS interpolation (Hyper HQ control mode Ⅱ is required)
Handle feed 3 axes: Standard pulse handle is removed.
Inverse time feed
Part program storage capacity: 2560m [1MB]
(Number of registerable programs: total 1000)
Part program storage capacity: 5120m [2MB]
(Number of registerable programs: total 1000)
Color touch-panel display (19" LCD Software MDI KEY)
RS232C interface: RS232C-1CH
Computer link B: RS232C
Spindle contour control (Spindle position control)
3-dimensional cutter compensation
Tool offset sets: total 400 sets
Tool offset sets: total 999 sets
Addition of workpiece coordinate system sets:
total 96 sets G54.1 P1 through G54.1 P96
Addition of workpiece coordinate system sets:
total 300 sets G54.1P1 through G54.1 P300
Tool retract and return
Scaling: G51, G50: Cancel
Pattern rotation
Chopping
Special canned cycles: G34, G35, G36, G37
Additional tool life management sets: total 400 sets
Additional tool life management sets: total 999 sets

Original Nidec OKK Software

HQ control ····· STD
Hyper HQ control mode Ⅰ ····· Opt
Hyper HQ control mode Ⅱ ····· Opt
Soft Scale Ⅱm ····· STD
WinGMC8 ····· Opt
Machining support integrated system ····· STD
Tool support ····· STD
Program Editor ····· STD
EasyPRO ····· STD
Work Manager ····· Opt
Cycle Mate ····· Opt
Touch sensor T0 software ····· Opt
Soft CCM (Cutting failure monitoring) ····· Opt
Soft AC (Adaptive control) ····· Opt
Automatic restart at tool damage ····· Opt

Note: N850 (Windows 8-installed Open CNC)
STD : Standard Opt : Option

F31i-B Plus (WindowsCE-installed Open CNC)

Standard Specification

No. of controlled axes: 3 axes (X, Y, Z)
No. of simultaneously controlled axes: 3 axes
Least input increment: 0.001mm / 0.0001"
Max. programmable dimension:
±999999.999mm/±39370.0787"
Absolute / Incremental programming: G90 / G91
Decimal point input/
Pocket calculator type decimal point input
Inch/ Metric conversion: G20 / G21
Program code: ISO / EIA automatic discrimination
Program format: FANUC standard format
FS15 tape format
Nano interpolation (internal)
Positioning: G00
Linear interpolation: G01
Circular interpolation: G02 / G03 (CW/CCW)
(Including radius designation)
Helical interpolation
Unidirectional positioning: G60
Cutting feed rate: 6.3-digit F-code, direct designation
Rapid traverse override: 0/1/10/25/50 / 100%
Cutting feed rate override: 0 to 200% (every 10%)
Feed rate override cancel: M49 / M48
Rigid tapping: G84, G74 (Mode designation: M29)
Manual handle feed:
Least input increment ×1, ×10, ×100 / graduation
Dwell: G04
One-digit F code feed
inverse time feed
Part program storage capacity:
total 10240m [4MB] (total 1000 programs)
Part program editing
Background editing: Possible to program or edit the machining program while NC machining is executed.
Extended part program editing
15-inch color LCD / QWERTY key MDI
Clock function
MDI (manual data input) operation
Run hour and parts count display
Memory card / USB interface
Spindle function:
Direct designation of spindle speed with 5-digit S-code
Spindle speed override: 50 to 150% (every 5%)
Tool function: Direct designation of called tool number with 4-digit T-code
ATC tool registration
Auxiliary function: Designation with 3-digit M-code
Multiple M-codes in 1 block: Maximum 3 codes in 1 block (Maximum 20 settings)
Tool length offset: G43, G44 / G49
Tool diameter and cutting edge R compensation:
G41, G42 / G40
Tool offset sets: total 400 sets
Tool offset memory C
Tool position offset
Automatic reference position return: G28 / G29
2nd reference position return: G30
Machine coordinate system: G53
Coordinate system setting: G92
Automatic coordinate system setting
Workpiece coordinate system:
G54 to G59 G54.1 P1 ～ P48
Local coordinate system: G52
Polar coordinate command: G15, G16
Manual reference position return
Reference position return check: G27
Optional block skip: /
Single block
Dry run
Machine lock
Z-axis feed cancel
Auxiliary function lock
Graphic function
Program number search
Sequence number search
Program restart
Cycle start
Feed hold
Manual absolute (ON / OFF with PMC parameter)
Auto restart
Program stop: M00
Optional stop: M01
Sequence number collation and stop
Sub program control
Canned cycle: G73, G74, G76, G80 to G89
Mirror image function parameter
Custom macro
Programmable mirror image
Programmable data input: G10
Automatic corner override
Manual Guide i (Basic)
Exact stop check / mode
Scaling: G50, G51
Additional custom macro common variables: 1000
Coordinate system rotation: G68, G69
Optional chamfering / corner R
Playback
Interpolation type pitch error compensation
Backlash compensation for each rapid traverse and cutting feed
Smooth backlash
Skip function
Tool life management: total 256 sets
Tool length manual measurement
Data protection key
NC alarm display / alarm history display
Machine alarm display
Stored stroke check 1
Stored stroke check 2
Load monitor
Self-diagnosis
Absolute position detection

Optional Specification

Additional one axis control:
name of axis (A, B, C, U, V, W)
Additional two axes control:
name of axis (A, B, C, U, V, W) Note1
No. of simultaneously controlled axes: 4 axes
No. of simultaneously controlled axes: 5 axes Note1
Least input increment: 0.0001mm / 0.00001"
Spiral / Conical interpolation
Cylindrical interpolation
Hypothetical axis interpolation
Involute interpolation
NURBS interpolation
Smooth interpolation
(Hyper HQ control B mode is required)
Handle feed 3 axes:
Standard pulse handle is removed
Part program storage capacity:
total 20480m [8MB] (1000 in total)
Machining time stamp
Data server: ATA card (1GB)
Data server: ATA card (4GB)
RS232C interface: RS232C-1CH
Spindle contour control (Cs contour control)
Tool position offset
Tool offset sets: total 499 sets
Tool offset sets: total 999 sets
Addition of workpiece coordinate system (total 300 sets):
G54.1 P1 to P300
Optional block skip: Total 9
Manual handle interruption
Tool retract and return
Figure copy
Interruption type custom macro
Instruction of inclined plane indexing
Chopping
Manual Guide i (Milling cycle)
Addition of tool life management sets: total 1024 sets
High-speed skip

Original Nidec OKK Software

Integrated machining support software
(incl. help guidance, etc.) ····· STD
Tool support ····· STD
Program Editor ····· STD
EasyPRO ····· STD
Work Manager ····· Opt
HQ control ····· STD
Hyper HQ control mode A ····· Opt
Hyper HQ control mode B ····· Opt
Hyper HQ varue kit Note2 ····· Opt
Special canned cycle (including circular cutting) Opt
Cycle Mate F ····· Opt
Soft Scale Ⅱm ····· STD
Touch sensor T0 software ····· Opt
Soft CCM (Tool failure detection system) ····· Opt
Soft AC (Adaptive control unit) ····· Opt
Automatic restart at tool damage ····· Opt

Note1 : F31i-B5 Plus (WindowsCE-installed Open CNC)
Note2 : Includes Data server : ATA card (1GB) and Hyper HQ control mode B
STD : Standard Opt : Option