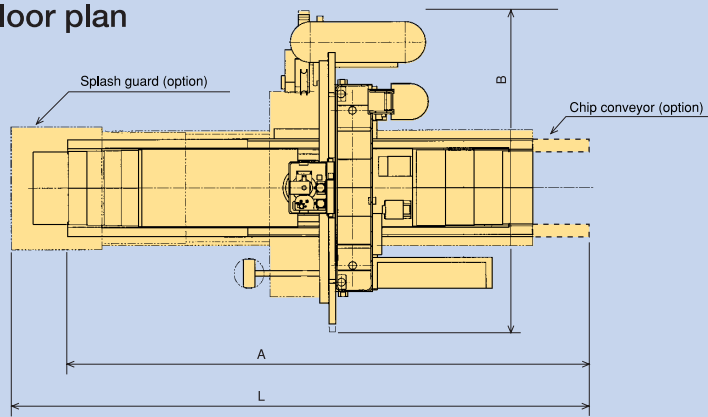
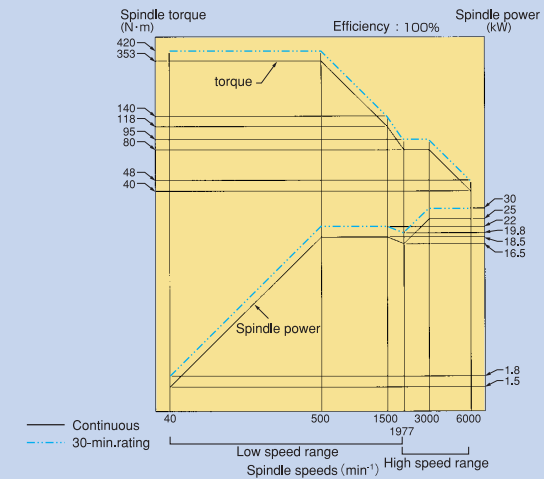


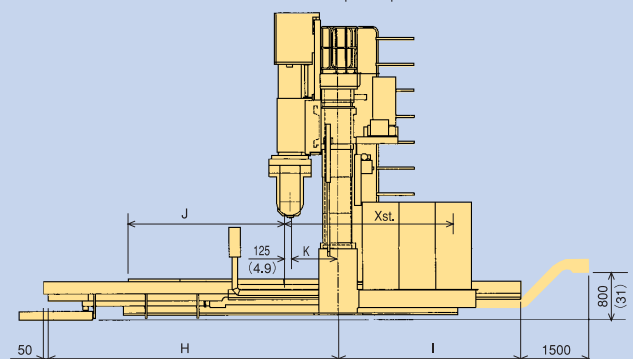
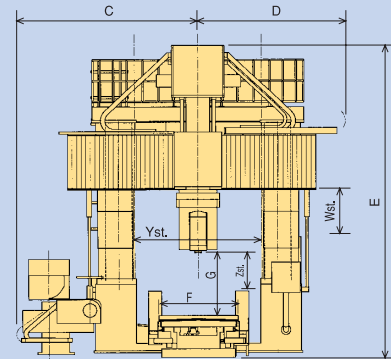
Floor plan



Spindle Power & Torque Diagram



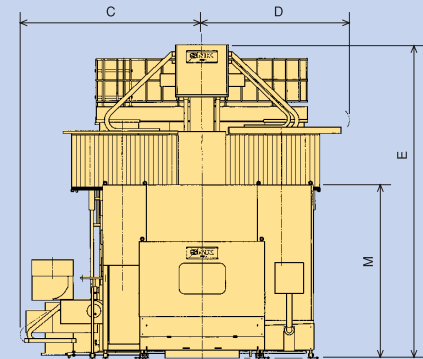
Outer Dimension Drawings



Unit:mm (inch)

	A	B	C	D	E	F	G	H	I	J	K	X	Y	Z	W
RB-150F	10550 (416)	6360 (251)	3440 (136)	2905 (115)	5940 (234)	1500 (59)	1200 (47)	5525 (218)	3525 (139)	3000 (119)	925 (37)	3250 (127)	2400 (94)	600 (23)	600 (23)
RB-200F	12610 (497)	6890 (272)	3690 (146)	3165 (125)	6190 (244)	2000 (78)	1450 (57)	6560 (259)	4550 (180)	4000 (158)	925 (37)	4250 (167)	2900 (114)	600 (23)	850 (33)
RB-250F	14610 (576)	6890 (272)	3690 (146)	3165 (125)	6190 (244)	2500 (98)	1450 (57)	7530 (297)	5580 (220)	5000 (197)	925 (37)	5250 (206)	2900 (114)	600 (23)	850 (33)
RB-300F	17195 (677)	7828 (309)	4208 (166)	3595 (142)	6500 (256)	3000 (118)	1700 (66)	8735 (344)	6960 (275)	6000 (237)	975 (39)	6250 (246)	3820 (150)	600 (23)	1100 (43)
RB-350F	17195 (677)	8320 (328)	4550 (180)	3760 (149)	6500 (256)	3500 (138)	1700 (66)	8735 (344)	6960 (275)	6000 (237)	975 (39)	6250 (246)	4500 (177)	600 (23)	1100 (43)
RB-400F	19680 (775)	9408 (371)	4958 (196)	4420 (175)	7280 (287)	4000 (157)	1950 (76)	10850 (428)	8830 (348)	8000 (315)	1025 (41)	8250 (324)	5320 (209)	800 (31)	1150 (45)

Outer Dimension Drawings [with Splash guard (option)]



	L	M	N	O	P
RB-150F	11610 (458)	3270 (129)	6715 (265)	2200 (87)	1070 (43)
RB-200F	13575 (535)	3520 (139)	7655 (302)	2510 (99)	1010 (40)

Specifications are subject to change without notice.



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Certified to ISO 9001
(Quality Management System)
Certified to ISO 14001
(Environmental Management System)

New Bridge Type High-Speed 5-Axis Machining Center

RB-F



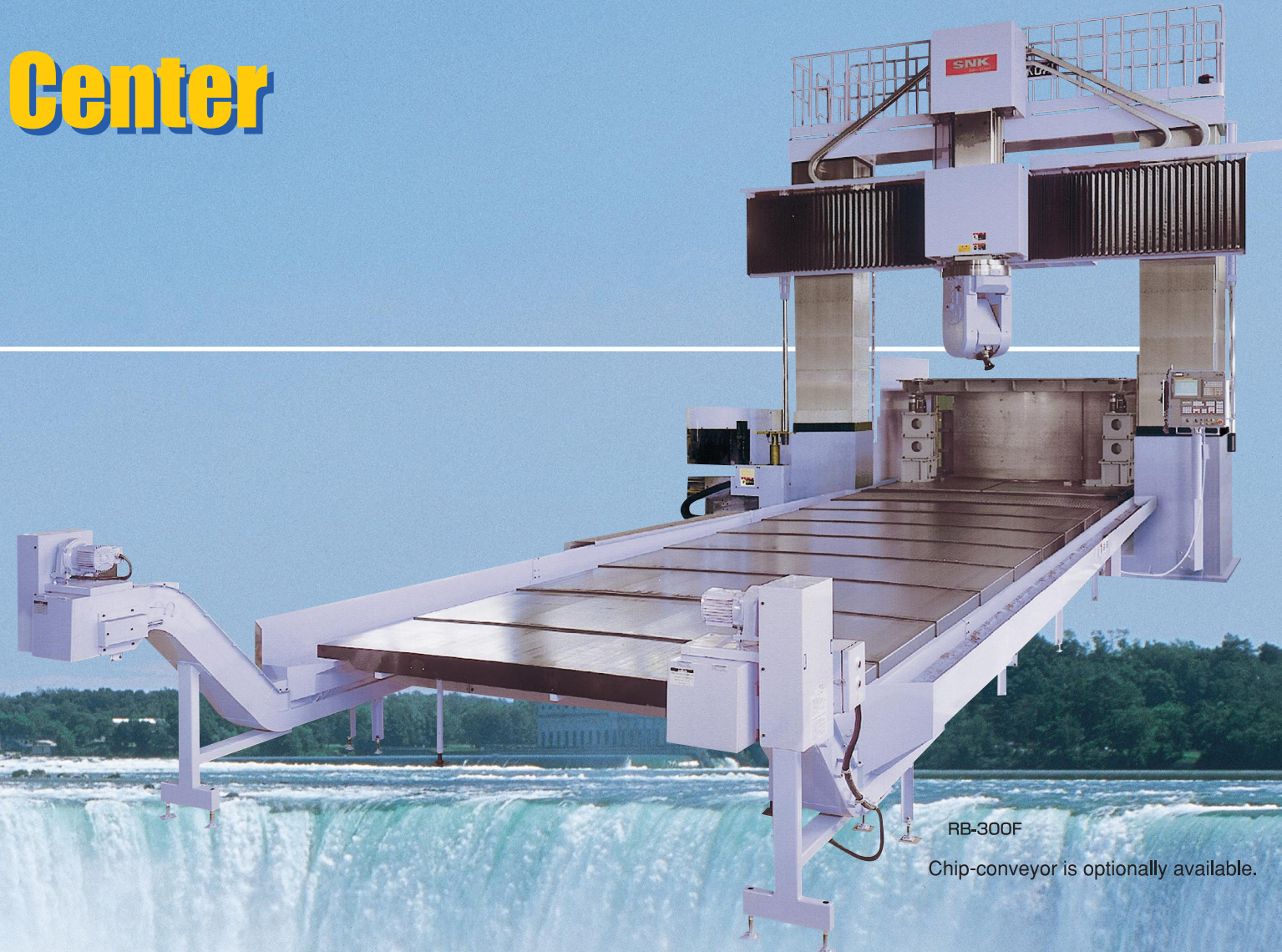
A Bridge Type 5-Axis Machining Center Equipped with User-Friendly 5-Axis Control Functions

Applicable to a wide range of highly efficient precision machining operations ranging from 3-axis machining to 5-axis continuous machining of 3D contours.

- Highly rigid, completely heat treated, steel-welded frame structure makes high-speed precision machining possible.
- The machine was designed through FEM (Finite Element Method) structural analysis to increase its static rigidity and dynamic rigidity.



RB-150F
Splash guard is optionally available.



RB-300F
Chip-conveyor is optionally available.

Machining range

The large table working surface (3,000 x 1,500 ~ 8,000 x 4,000 mm [118"x59"~314"x157"]) and extra-large X- and Y-axis travels permit the machining of large or long workpieces.

High-efficiency

The high-power and high-speed spindle drive motor (25 kW [35HP])(High-speed/continuous), 6,000 min⁻¹), combined with high feedrates (rapid feed for X and Y axes: 20 m/min[800ipm], cutting feed for X and Y axes: 10,000 mm/min [400ipm]), makes highly efficient machining possible. [for RB-150F/200F/250F]

High precision

The large 450 x 450 mm (17.7"x17.7") ram is provided to ensure highly rigid precision machining.

Clean working environment

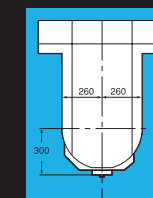
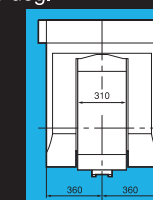
The fully enclosed splash guard (option) ensures a clean working environment and worker safety.

The RB-F is the newest addition to the best-selling RB series, as a new bridge type 5-axis machining center added with 5-axis capabilities while inheriting the basic bridge type machining structure.

The table size of 3,000 x 1,500~8,000 x 4,000 mm (118"x59"~314"x157") with its loading capacity up to 10,000~40,000 kg (22,000~88,000 lbs) enables the voluntary surface and 5-axis machining of large workpieces.

High-speed spindle tilting (B & C axes)

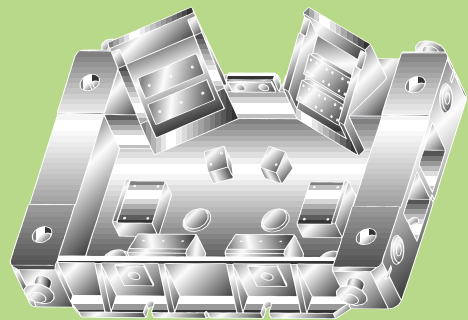
Tilting speed	3,600 deg./min
Feedrate	0 to 3600dpm
Tilting angle	B-axis: ± 95 deg. C-axis: ± 360 deg.



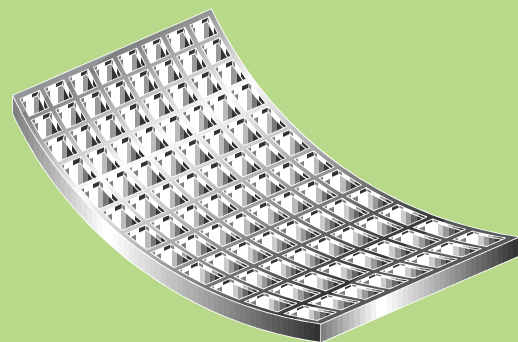
RB-F offers process -intensive capability-

It ensures a drastic reduction in multi-sided and continuous 5-axis machining time.

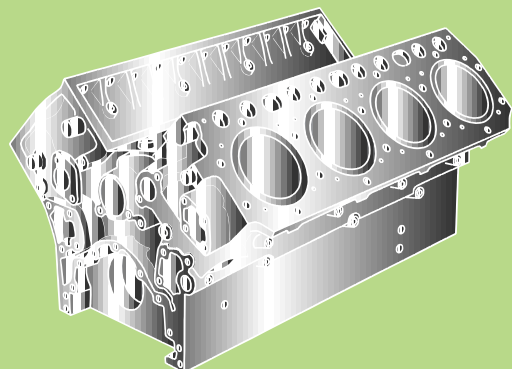
Sample
Work Pieces



Cam pierce die



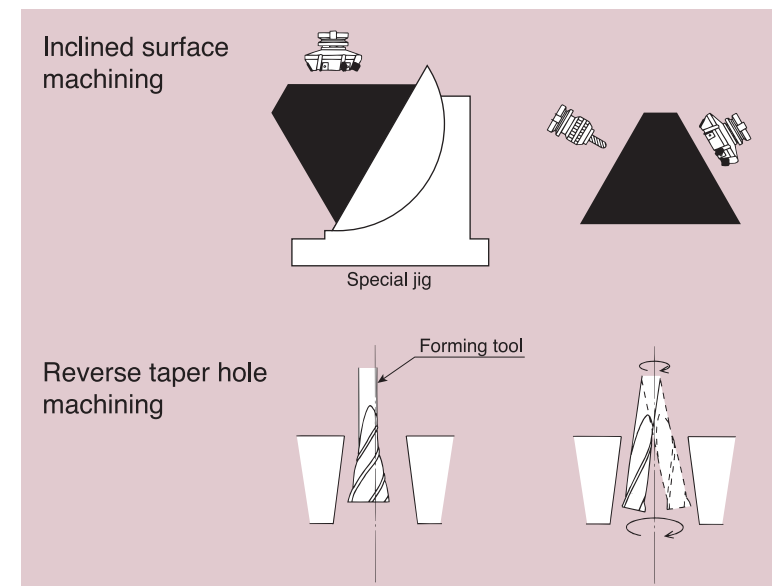
Curved plate



Cylinder block

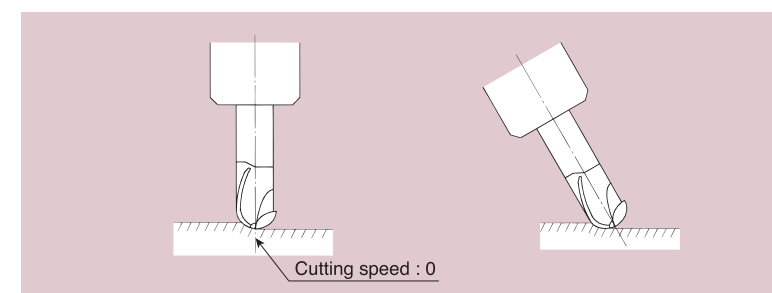
Increased efficiency in machining inclined surfaces

Previously, a 3-axis controlled machine needed special jigs and tooling for machining of the dies, aircraft parts, engine blocks and others which have inclined surfaces. Now, with its 5-axis control capability, RB-F not only reduces the number of work setups but also provides stable machining accuracy with the multi-sided machining, while slashing costs for jigs or tooling.



Reduction in tooling costs for profile milling

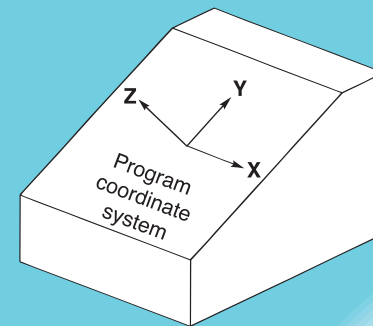
In the profile milling using a ball end mill, a 3-axis controlled machine has an adverse effect upon the tool life and finished surface roughness because the cutting speed in the tool center becomes zero. RB-F machines a surface by the side of a cutter in its inclined attitude, thereby improving the tool life and finished surface roughness. Also in the corner milling of dies, RB-F eliminates the necessity of a conventional long tool, resulting in reduction of machining time and tooling costs.



Voluntary surface machining software (Option)

This software allows the operator to generate programming for even an inclined surface with a normal surface to tool axis (X-Y plane) and the tool axis (Z plane). The programmer can create programs without regard to the inclined surfaces.

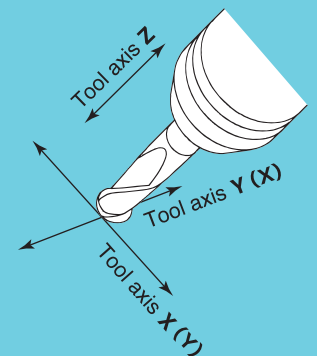
Effective for inclined surface machining



Tool axis manual movement function (handle feed type)

This enables the operator to move the spindle in the tool axis direction (Z axis) and vertical direction to tool axis (X, Y axes) by use of manual handle feed even while B and C axes are inclined. Through use of this function, the operator can easily execute thrust or escape movements of the tool.

Effective for inclined surface machining



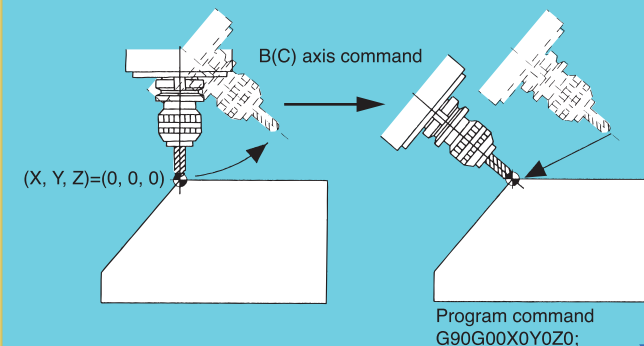
Supporting functions for Multi-sided and 5-axis machining

User-friendly functions to further facilitate 5-axis machining are also available.

Tool position compensating software (Option)

This software automatically compensates the work coordinate system for positional changes in the tool end which may arise due to B- and C-axis rotation and/or tool change. The programmer can create programs without worrying about B- and C-axis rotating angles or tool length.

Effective for inclined surface machining



5-axis tool length and diameter compensating function (Option)

This function enables the tool length and diameter compensation function for 5-axis machining. The programmer can create programs without considering the tool length and diameter, and can save his trouble when changing tools.

Main Specifications

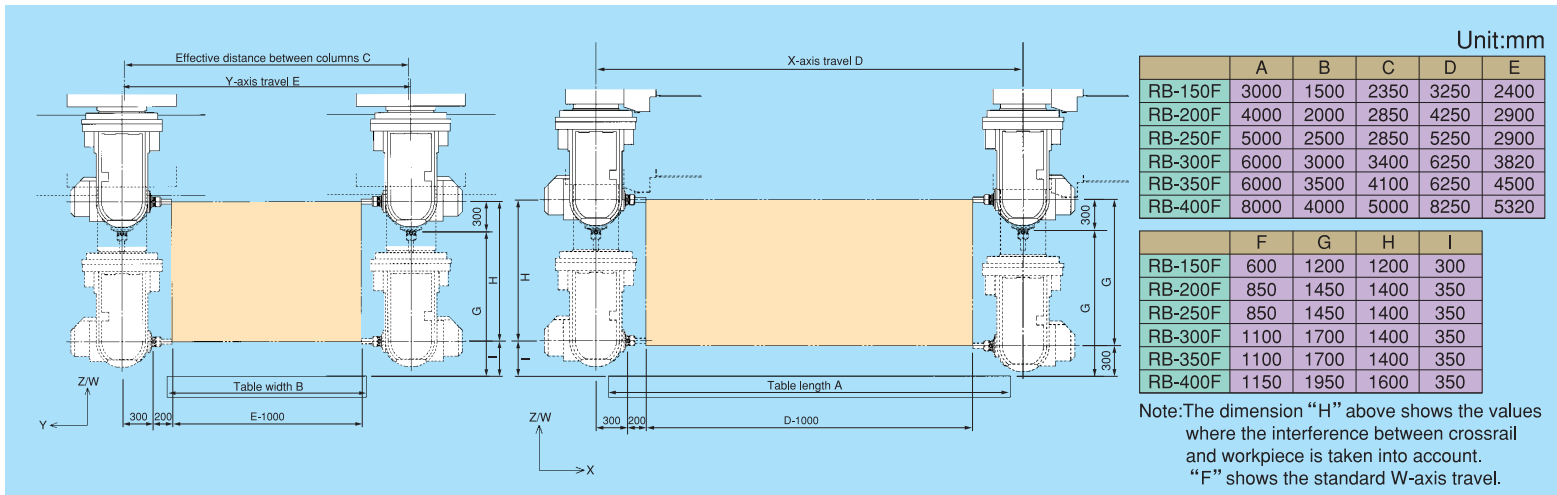
Spec. items			Unit	RB-150F	RB-200F	RB-250F	RB-300F	RB-350F	RB-400F	
Effective distance between columns			mm(inch)	2,350 (92)	2,850 (112)	2,850 (112)	3,400 (133)	4,100 (161)	5,000 (196)	
Distance from table top to spindle end (when spindle head is in vertical position)			mm(inch)	0 to 1,200 (0 to 47)	0 to 1,450 (0 to 57)	0 to 1,450 (0 to 57)	0 to 1,700 (0 to 66)	0 to 1,700 (0 to 66)	0 to 1,950 (0 to 76)	
(when spindle head is in horizontal position)				300 to 1,500 (11 to 59)	300 to 1,750 (11 to 68)	300 to 1,750 (11 to 68)	300 to 2,000 (11 to 78)	300 to 2,000 (11 to 78)	300 to 2,250 (11 to 88)	
Table	Size of working surface	Width	mm(inch)	1,500 (59)	2,000 (78)	2,500 (98)	3,000 (118)	3,500 (137)	4,000 (157)	
		Length	mm(inch)	3,000 (118)	4,000 (157)	5,000 (196)	6,000 (236)	6,000 (236)	8,000 (314)	
	Permissible mass of workpiece		kg(lbs)	10,000 (22,000)	15,000 (33,000)	15,000 (33,000)	30,000 (66,000)	30,000 (66,000)	40,000 (88,000)	
Spindle	Spindle motor Low speed range (30min/continuous) High speed range (30min/continuous)		kW(HP)	VAC 22/18.5 (VAC 30/25)・500min ⁻¹						
			kW(HP)	VAC 30/25 (VAC 40/35)・3,000min ⁻¹						
	Spindle speed range		min ⁻¹	40 to 6,000						
	Spindle nose (nominal size,No.)			ISO No.50						
	Spindle bearing inner diameter/Cross section of ram		mm(inch)	90/450×450 (3.5/17.7×17.7)						
Travel	Table longitudinal	X axis	mm(inch)	3,250 (127)	4,250 (167)	5,250 (206)	6,250 (246)	6,250 (246)	8,250 (324)	
	Spindle head traverse	Y axis	mm(inch)	2,400 (94)	2,900 (114)	2,900 (114)	3,820 (150)	4,500 (177)	5,320 (209)	
	Ram vertical	Z axis	mm(inch)	Standard:600 (23) /Option:1,000 (39)						800 (31)
	Crossrail vertical	W axis	mm(inch)	600 (23)	850 (33)	850 (33)	1,100 (43)	1,100 (43)	1,150 (45)	
	Spindle head tilt	B axis	deg.	±95						
	Spindle head rotation	C axis	deg.	±360						
Feedrate	Rapid traverse	X,Y axes	m/min(ipm)	20 (800)			15 (600)			
		Z axis	m/min(ipm)	6 (240)						
		W axis	m/min(ipm)	3 (120)						
		B,C axes	dpm	3,600						
	Feedrate	X,Y axes	mm/min	1 to 10,000 (0.01 to 400)				1 to 6,000 (0.01 to 240)		
		Z axis	mm/min	1 to 6,000 (0.01 to 240)						
		W axis	mm/min	1 to 3,000 (0.01 to 120)						
		B,C axes	dpm	0 to 3,600						
Accuracy	Positioning accuracy	X,Y axes	mm(inch)	±0.006/1,000 (±0.00024/39.3) [Machine with scale feedback]						
				±0.008/1,000 (±0.00032/39.3) [Standard machine]						
		Z axis	mm(inch)	±0.007/Full travel (±0.00028/23.6) [Machine with scale feedback]						
				±0.01/Full travel (±0.00040/23.6) [Standard machine]						
		W axis	mm(inch)	±0.01/500 (±0.00040/19.6)						
	Repeatability	X,Y,Z axes	mm(inch)	±0.003 (±0.00012) [Machine with scale feedback]						
				±0.005 (±0.00020) [Standard machine]						
				±0.005 (±0.00020)						
CNC system				FANUC 30i						

Accessories

Standard Accessories	Selectable Options
<ul style="list-style-type: none">● Automatic Tool Changer (ATC device) 40-tools storage capacity● Slideway cover (for X,Y and W axes)● Coolant device (Flood coolant)● Spindle speed meter● Spindle load meter● Portable type manual handle operation panel● Cycle completion indication light● Automatic power shutoff function● Constant cutting load control● Lighting equipment (work light)● Ladder● Handrail on crossbeam● Foundation leveling device● Disassembly hand tools with a tool box● Earth leakage break function	<ul style="list-style-type: none">● Spindle speeds (40 to 8,000min⁻¹) (40 to 10,000min⁻¹)● Automatic pallet changer (APC)● ATC:60,80,100-tools storage capacity● Chip-conveyor (2- or 3-conveyor type)● Splash guard (Full cover type) (RB-150F/200F)● Large-capacity coolant tank● High-pressure Large-capacity coolant tank● Low-coolant-level alarm device for coolant tank● Air blow device● Mist coolant● Three datum slots on table in X-axis direction● Provisions for special tool holders (through-tool coolant,high-speed spindle)● Three-lamp indication light● Additional manual pulse handle (Total:2)● Portable type manual handle operation panel with coordinate display● Automatic measuring function * *1 <ul style="list-style-type: none">● Automatic alignment function (B=0 deg., C=0 deg.)*● 5-axis 3-dimensional point measuring function● Inclined face/hole measuring function*● Scale feedback for X,Y and Z axes● Scale feedback for B and C axes● Automatic tool length measuring function* (Touch sensor type)● Automatic tool length and tool diameter measuring function* (Laser system)● Broken tool detection● Special software for index machining* Voluntary surface machining software Tool position compensating software Automatic index data measuring and registration function● 250mm raising of column stand● Set-up supporting function (Interactive alignment function)*2● Energy saving options Hydraulic unit with inverter control Oil temperature control unit with inverter control ATC hydraulic auto off function

★These function are effective for inclined surface machining.
*1 Special software for index machining is necessary
*2 Automatic alignment function is necessary

Machining range (with a Angular attachment using a 200mm long cutter)



CNC System Specification (FANUC Series 30i)

Basic specifications			● Custom macro	G65 to G67 (Common variables:Total600)	
Controlled axis	6 axes (X,Y,Z,B,C & W)		● Canned cycle for drilling *	G73,G74,G76,G80 to G89,G98,G99	
Simultaneous controllable axes	Positioning (rapid feed)	6 axes	● Automatic corner override	G62	
	Linear interpolation	6 axes	● Coordinate system rotation	G68,G69	
	Circular interpolation	2 axes	● 3-dimensional coordinate system conversion *		
Least input increment	Linear axis	0.001mm (0.0001")	● Programmable mirror image	G50.1,G51.1	
	Rotary axis	0.001deg.	● Tape format for FS15		
Maximum programmable dimension	Linear axis	± 99999.999mm (± 9999.9999")	● Macro executor	1MB	
	Rotary axis	± 99999.999deg.	● Spindle serial output	S4 digit	
● HRV control		● Plane selection (G17 to G19)	● Spindle override	50 to 150% (every 10%)	
● Interlock		● Rotary axis roll-over	● Spindle orientation		
● Machine lock		● Coordinate system setting (G92)	● Spindle output switching function		
● Emergency stop		● Manual absolute on and off	● Tool offset pairs	Total:99	
● Stored stroke check1		● Programmable data input (G10)	● Cutter compensation *	G40 to G42	
● Mirror image		● Programmable parameter input	● Part program storage size	256Kbyte	
● Automatic operation (Memory/MDI/DNC)		● Sub program call (10 folds nested)	● Number of registable programs expansion	Total:500	
● Program number search		● Circular interpolation by R programming	● Background editing		
● Sequence number search		● Auxiliary function (M code)	● Run hour and parts count display		
● Wrong operation prevention		● Auxiliary function lock	● Multi-language display	English/Japanese	
● Buffer register		● Tool function (T code)	● RS-232C Ch1	1unit	
● Dry run		● Tool offset memory A	● Fast Ethernet/Data server	1GB	
● Single block		● Tool length offset (G43,G44,G49)*	● External data input		
● Manual continuous feed (JOG)		● Tool length measurement	● Synchronous control		
● Manual reference position return		● Backlash compensation for each rapid traverse and cutting feed	● 10.4” color LCD		
			Additional optional functions		
● Nano interpolation		● Smooth backlash compensation	● Inch/metric conversion	G20,G21	
● Positioning (G00)		● Program protect	● Stored stroke check 2,3	G22,G23	
● Exact stop mode (G61)		● Extended part program editing	● Sequence number comparison and stop		
● Exact stop (G09)		● Clock function	● Manual handle feed	Total:2unit	
● Linear interpolation (G01)		● Current position display	● Helical interpolation	G02,G03	
● Circular interpolation (Multi-quadrant is possible) (G02,G03)		● Program comment display (program name 31 characters)	● High-speed skip		
● Dwell (Per second) (G04)		● Parameter setting and display	● 3rd/4th reference position return		
● Skip (G31)		● Alarm display	● NURBS interpolation		
● Reference position return/check (G27,G28,G29)		● Alarm history display	● One-digit F code feed		
● 2nd reference position return (G30)		● Operator message history display	● AI contour control II		
● Rapid traverse override (F0,25%,50%,100%)		● Operation history display	● Addition of workpiece coordinate system	48 pairs	
● Feed per minute (mm/min)		● Actual cutting feedrate display	● Optional chamfering corner R		
● Tangential speed constant control		● Operating monitor screen	● Scaling	G50,G51	
● Cutting feedrate clamp		● Operating monitor screen	● Rigid tap		
● Cutting feedrate clamp		● Servo setting screen	● Tool offset pairs	Total:200	
● Feedrate override (0 to 200% (per every 10%))		● Spindle setting screen		Total:400	
● Override cancel		● Servo waveform display		Total:999	
● Linear ACC/DEC after cutting feed interpolation		● Data protection key (1 type)	● Tool offset memory C		
● Tape code (EIA/ISO automatic recognition)		● Erase CRT screen display	● Tool offset		
● Label skip		● Parameter set supporting screen	● Tool center point control		
● Control in/out		● Help function	● 3-dimensional tool compensation		
● Program file name (32 characters)		● Self-diagnosis function	● Tool length compensation in tool axis direction		
● Sequence number (N8 digit)		● Memory card input/output	● 3-dimensional cutter compensation		
● Absolute/incremental programming (G90,G91)		● Screen hard copy	● Work setting error compensation		
● Decimal point programming/pocket calculator type decimal point programming		● Machine interface (DI/DO)	● Tool life management		
			● Part program storage size	Total:512Kbyte	
SNK standard optional functions				Total:1Mbyte	
● Stroke limit check before move				Total:2Mbyte	
● Stored/interpolation type pitch error compensation				Total:4Mbyte	
● Program restart			● Multi-language display	German, French, Spanish, Italian, Chinese, Korean, Portuguese, Dutch, Danish, Swedish, Polish	
● Manual handle feed		0.001,0.01,0.1mm/pulse			
● 3-dimentional manual feed *					
● Handle interruption			● Graphic function	Tool path drawing	
● Single direction positioning		G60	● RS-232C Ch2	Total:2 units	
● Inverse time feed		G93	● Dual position feedback		
● External deceleration			● Cs contouring control		
● Optional block skip		Total:3	● High Speed Serial Bus (HSSB)		
● Workpiece coordinate system		G52 to G59	● FOCAS2		
● Workpiece coordinate system preset		G92.1	● Fast Ethernet / Data server	4GB	

★These function are effective for inclined surface machining.