



Double Column Machining Centers



DMC-4000 / SDMC-6000

Fixed / Moving Column, 5-Axis / 5-Face Series

Order-made

Double Column *M*achining *C*ent



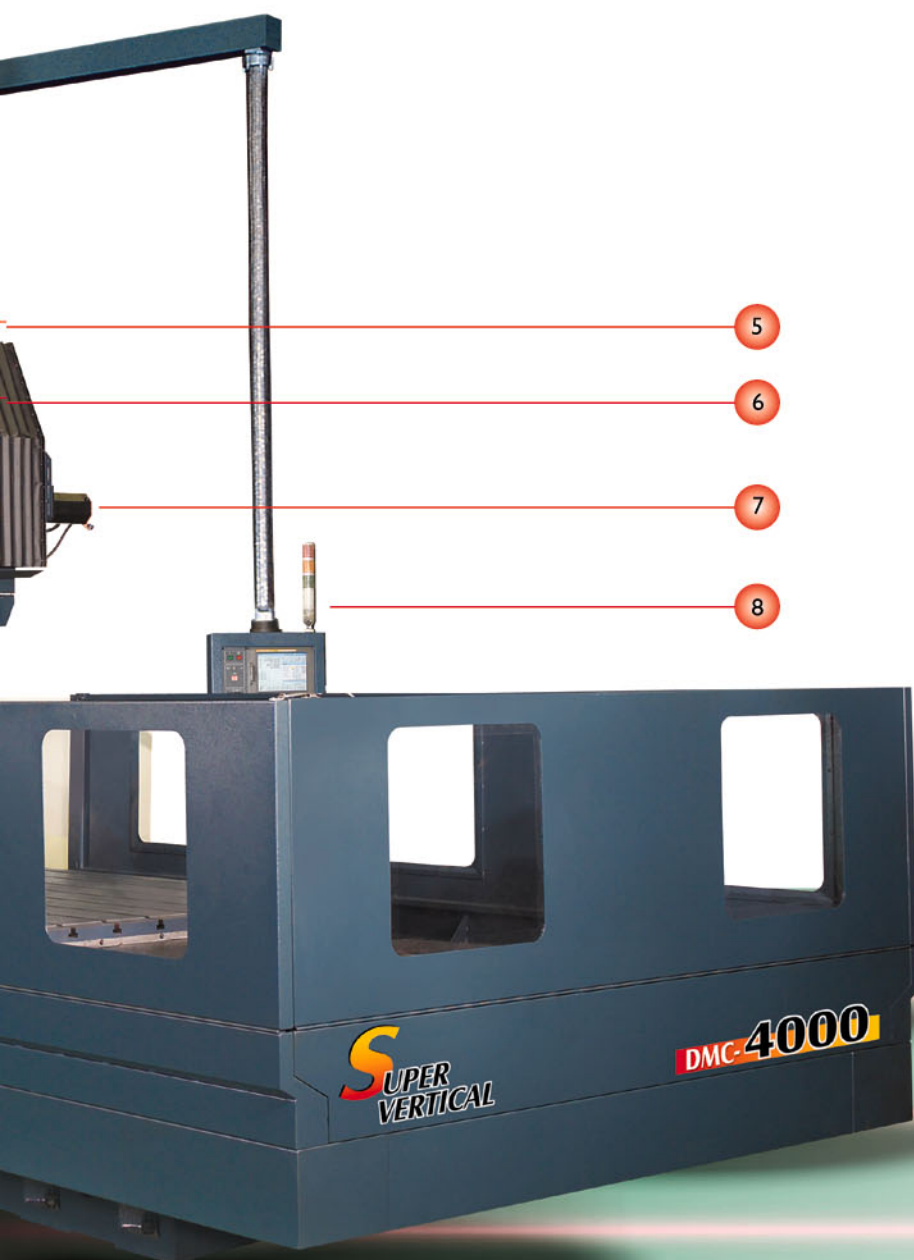
DMC-4000

Mightiest of Them All

Johnford DMC's are the heaviest, best built bridge mills on the planet. These are heavy machines built to last while delivering heavy cutting, high accuracy, and high speed. Check out these specs:

DMC-4000: 4000 x 2800 x 800 mm, 66200 kg
(157.5" x 110.2" x 31.5", 145800 lb)
4000 x 2800 x 1066 mm, 64200 kg
(157.5" x 110.2" x 42", 141400 lb)

When the machine is equipped with the 5-axis or 5-face heads, the machine structure is changed.



1

Twin hydraulic cylinders balance the massive headstock.

2

Large diameter spindle is driven by a 26 kW (37 kW Opt.) spindle motor and 2 speed ZF helical transmission for heavy cutting. The spindle cartridge and the gearbox have their own separate oil chillers for the best thermal stability possible. Plus, it generates 662 N-m (488 lb.ft) of torque at only 375 rpm for 26 kW and 1472 N-m (1086 lb.ft) at only 240 rpm for 37 kW. Multi-axes heads are optional.

3

Johnford's ATC system is the best available. The standard ATC is 40 tools with options of 60 tools or more. The ATC is self contained and stands alone. The fixed pot system always puts the tool back in the pocket it came from. 200 mm (8") shell mills are easily accommodated in the magazine.

4

Massive one piece base castings. All major machine components are made from high quality meehanite cast iron.

5

The largest bridge and saddle in the industry! The cross rail is 1332 mm (52.4") tall x 1213 mm (47.8") deep. The saddle is 1250 mm (49.2") tall and 1200 mm (47.2") wide and holds onto a full 1250 mm (49.2") of the Z axis head for the ultimate in stability and rigidity. The massive Y axis ways are offset 250 mm (10") for stability and accuracy.

6

Ballscrews are the largest in the industry 80 mm (3.1") in the X and Y and 63 mm (2.5") in the Z. They are pretensioned to eliminate thermal growth.

7

Servo motors are the largest in the industry too! 6 kW on X and Y with 2:1 gear reduction drives for the most axis thrust available.

8

Fanuc 18i MB/0i MC/21i MB controls are used for reliable service and state-of-the-art technology.

Super Advanced Features

- Large diameter spindle with big power
- Twin hydraulic cylinders for balance
- The largest bridge and saddle in the industry
- The largest ballscrews in the industry
- The largest servo motors in the industry
- Twin chip removal systems
- Massive one piece castings
- Excellent ATC system
- The largest order-made machine available



Double Column *M*achining *C*ent

1

2

3

4

SDMC-6000

How Big is Big Enough for

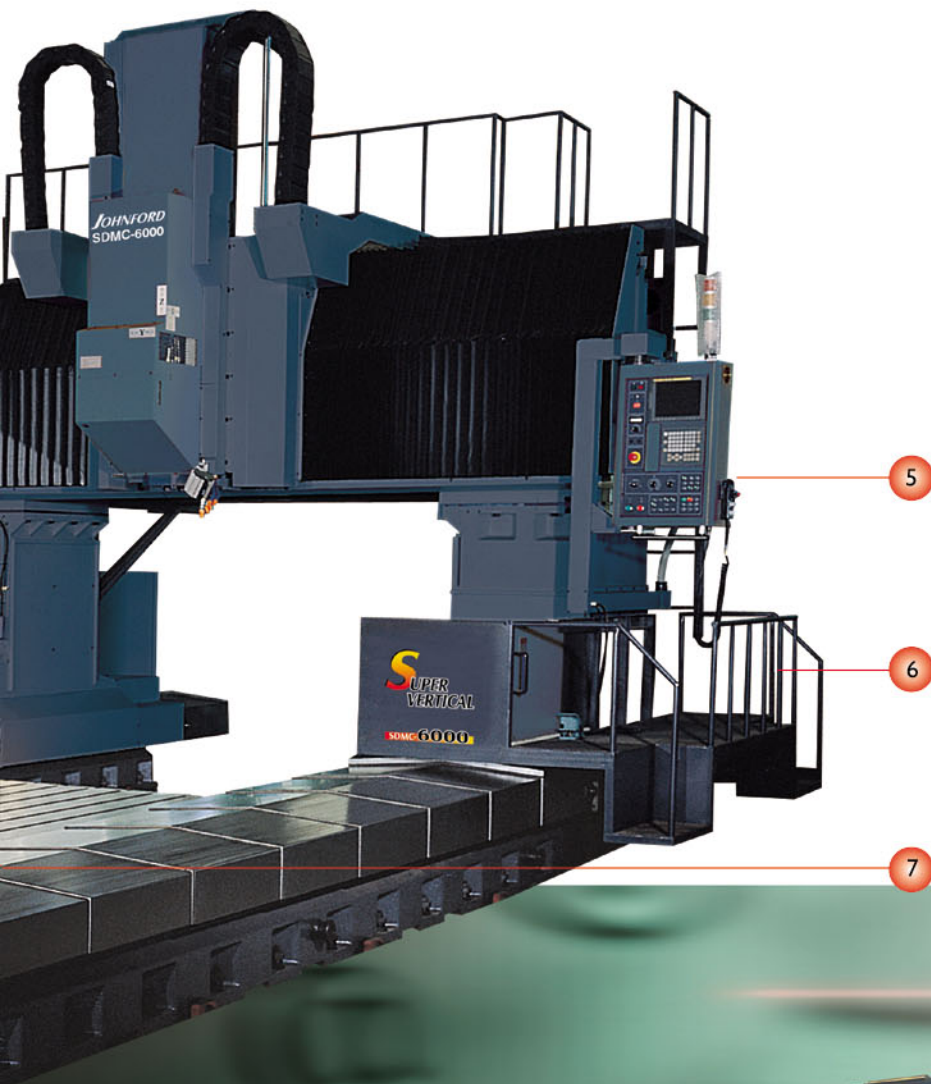
Johnford SDMC's are built for the really big jobs. Starting with X travels of 5000 mm (196.9"), we can build it to 30000 mm (1181.1") or more.

When the machine is equipped with the 5-axis or 5-face heads, the machine structure is changed.

Super Advanced Features

- Large diameter spindle with big power
- Twin hydraulic cylinders for balance
- The largest bridge and saddle in the industry
- The largest ballscrews in the industry
- The largest servo motors in the industry
- Twin chip removal systems
- Massive one piece castings
- Excellent ATC system
- The largest order-made machine available

ers (Rail Type)



1

Same massive bridge/saddle/head assembly as our DMC series.

2

Same excellent ATC system used on our DMC's. We mount the ATC to the column as the standard system to save ATC time.

3

Twin 80 mm (3.1") ballscrews are used on the X-axis in 11 meters. One ballscrew is under each column. The ballscrews are synchronized in a master/slave system by the Fanuc CNC control system. Due to the length of the ballscrews, the ballscrews remain stationary while the ball nuts are rotated by the powerful servo motors. When the X-axis length of machine is over 11 meters, we will use twin preloaded rack & pinion drive systems to move the X-axis of machine for standard. Because the ballscrews will have move cost made and difficulty in manufacturing.

4

Efficient chip removal system consisting of 2 screw type conveyors and a caterpillar type conveyor with 1220 mm (48") discharge height is standard.

5

Fanuc 18i MB control is standard

6

Operator rides along on platform attached to column.

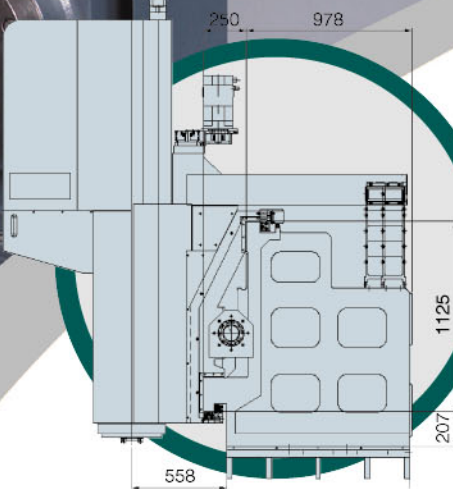
7

Moving column/stationary table design can handle virtually unlimited table loads and conserves valuable floor space.

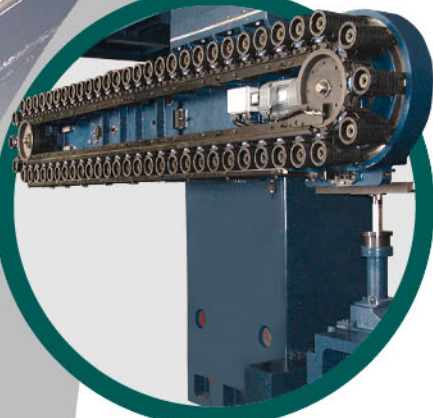
You?



Reliable Mechanical Design



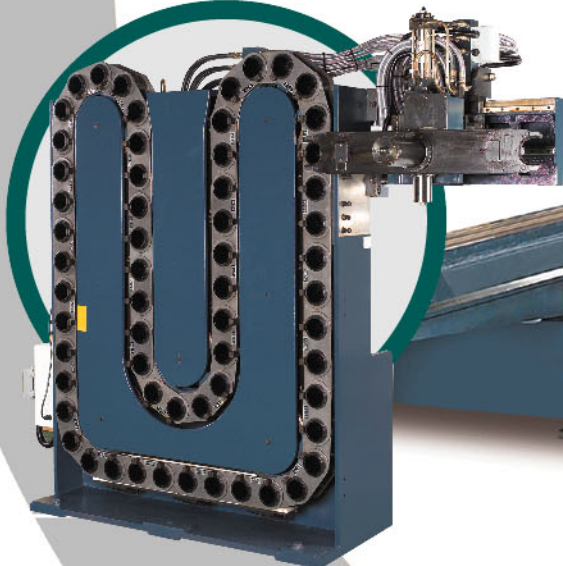
- ◀ Both Y & Z use hardened & ground box ways with turcite-B.
- Box structure ram ensures working stability and accuracy.
- Zero overhang on Z travel.
- Double support hydraulic counter balances provide high stability.



◀ Automatic Tool Changer

- Reliable automatic tool changer provides 7 seconds tool change time.
- Automatic tool change arm is supported by linear ways to ensure rapid & smooth traverse.
- Bi-directional tool changer without interference. 40 tools automatic tool changer is standard. 60 tools or more are optional.

40 tools (Std.) / 60 tools (Opt.)



60 tools or more (Opt.)



◀ Belt Type Spindle



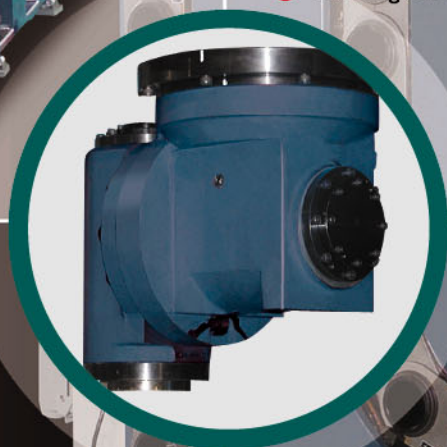
5-Axis Head (Opt.)



5-Face Head (Opt.)



90° Milling Head (Opt.)

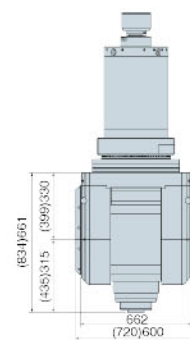
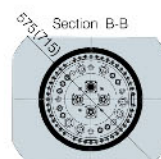
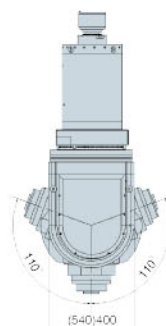
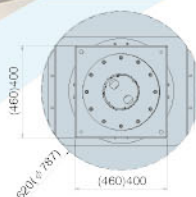


Multiangular Milling Head (Opt.)

5-Axis Head

NC Milling Head with Motorized Spindle

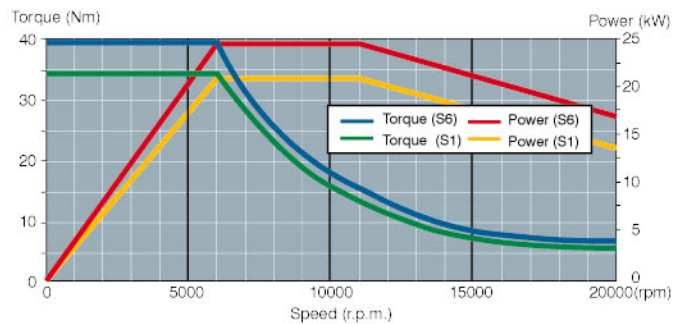
() For HSK A100 Tool System



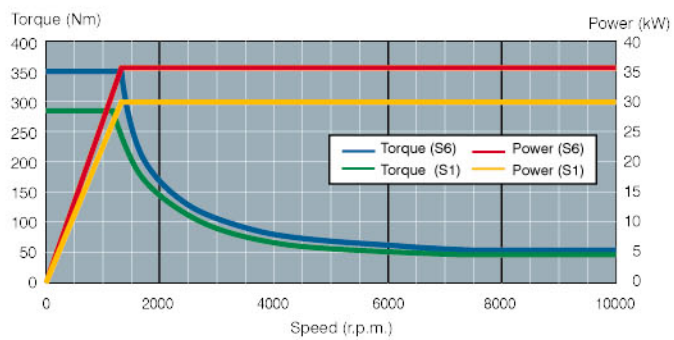
Technical Data

Item	Model	Main Spindle			
		M5A		G5A	
Power		21 kW (S1)	24 kW (S6)	30 kW (S1)	36 kW (S6)
Nominal speed		5,870 r.p.m.		1,000 r.p.m.	
Max. torque		35Nm (S1)	39 Nm (S6)	280 Nm (S1)	350 Nm (S6)
Max. speed		20,000 r.p.m.		10,000 r.p.m.	
Tool system		HSK A63		HSK A100	
Clamping system		hydromechanical		hydromechanical	
Clamping force		10 kN		25 kN	
Tool cleaning		automatic		automatic	
Installation position		vertical, horizontal		vertical, horizontal	
Spindle bearings front		2 x ϕ 70 Hybrid		3 x ϕ 100 Hybrid	
Bearing rigidity		axial 370 N/ μ m, radial 450 N/ μ m		axial 540 N/ μ m, radial 650 N/ μ m	
Bearing lubrication		Grease		Grease	
Spindle cooling		Water glycol		Water glycol	
Cooling performance		2 kW		5 kW	
Cooling temperature		20-25°		20-25°	
Cooling volume approx		8 l/min		14 l/min	
Metal removal rate		Milling 	Milling 	Milling 	Drilling 
Material		Steel 600-700 N/mm ²	Aluminium AlMgSi 1	Steel 600-700 N/mm ²	Steel 600-700 N/mm ²
Machining volume (cm ³ /min)		270	1000	600	-
Tool/edges(ϕ mm)		32/3	63/5	80/5	40
Rotational speed (r.p.m.)		3,580	4,825	1,000	360
Cutting speed (m/min)		360	955	250	45
Cut W x D (mm)		25x4	52x4	65x5	-
Feed (mm/min)		2,150	4,825	1,500	250
Cooling System					
External coolant supply		4 Spray nozzles		4 Spray nozzles	
Internal coolant supply		optional		optional	
Max. pressure		70 bar		70 bar	
Air		optional		-	
Minimal cooling lubrication		optional		-	

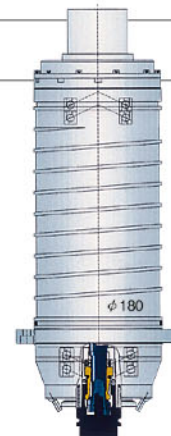
Power Chart



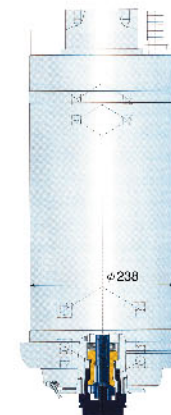
HSK A63 20,000 rpm



HSK A100 10,000 rpm

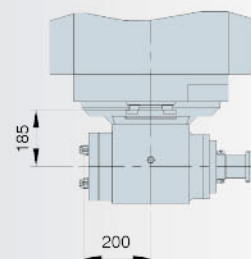


HSK A63
(for middle head)



HSK A100
(for large head)

5-Face Head

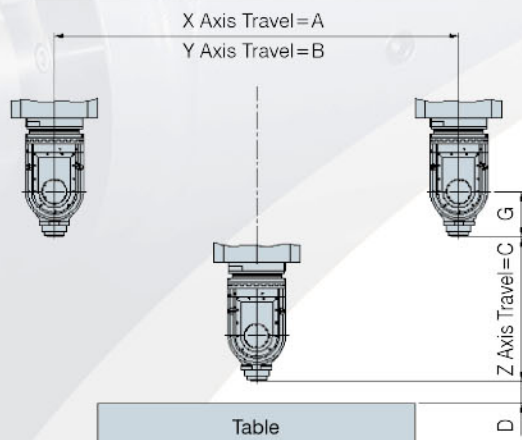


5-Face Head Specifications

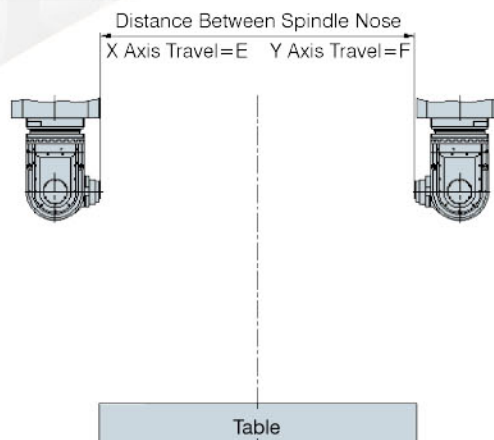
Max. Spindle Speed	Vertical Spindle 6000 rpm Horizontal Spindle 2000 rpm / 4000 rpm (Opt.)
Spindle Motor	22 / 26 kW
Spindle Taper	BT 50/CAT 50
Spindle Lubrication	Grease
Coolant	Coolant thru vertical Spindle
Axis Clamping	Curvic Coupling
Min. Indexing	5 Degree
Tool Clamping	Power Drawbar

Working Range

DMC-4000x2800+5A



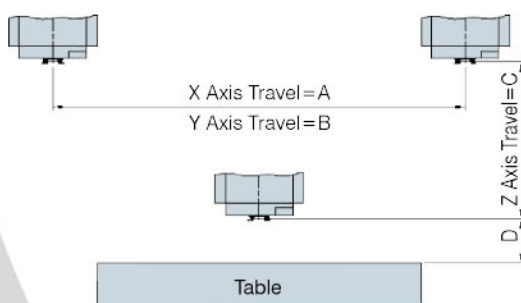
Vertical Spindle



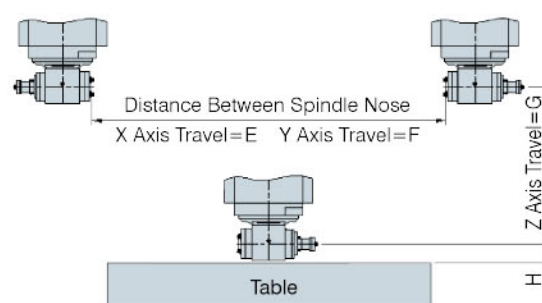
Horizontal Spindle

Size	Model	HSK A63	HSK A100
A		4000 mm (157.4")	
B		3600 mm (141.7")	
C		1066 mm (42")	
D		150 mm (5.9")	
E		3370 mm (132.6")	3100 mm (122")
F		2970 mm (116.9")	2700 mm (106.3")
G		315 mm (12.4")	450 mm (17.7")

DMC-4000x2800+5F



Vertical Spindle



Horizontal Spindle

Size	Model	DMC -4000x2800+5F
Vertical Spindle	A	4000 mm (157.4")
	B	3600 mm (141.7")
	C	1066 mm (42")
	D	300 mm (11.8")
Horizontal Spindle	E	3600 mm (141.7")
	F	3200 mm (126")
	G	1066 mm (42")
	H	130 mm (5.1")

Spindle Power & Torque Chart

High Speed Spindle (Opt.)

(Built-in Motor)

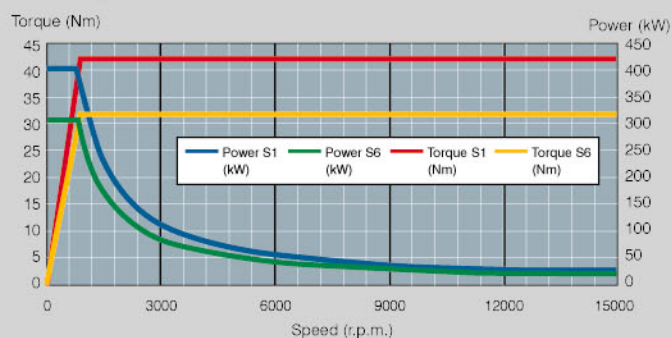
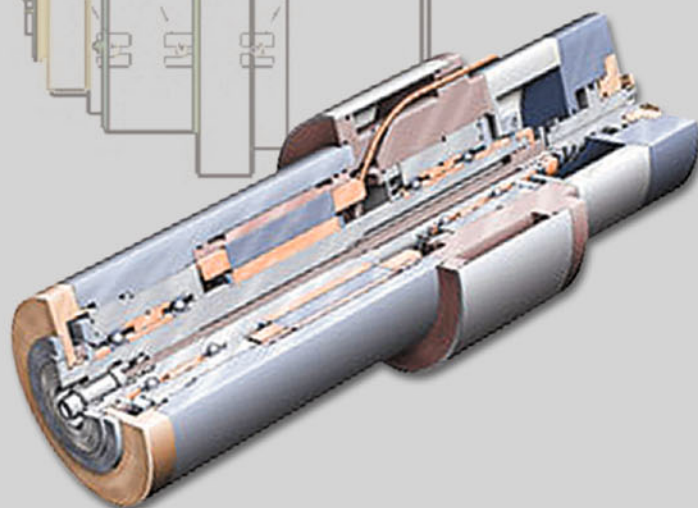
Technical Data

Drive Layout

Tool system	HSK A100
Power	32 kW
Nominal speed	1,000 r.p.m.
Max. Torque	400 Nm
Max. Speed	15,000 r.p.m.
Control	Fanuc / Siemens / Heidenhain
Voltage	380V
Max. Current	125 A
Driver	SPM-75 HVI
Clamping system	Hydraulic
Clamping Force	45 kN
Tool cleaning	Central + Surrounding
Spindle bearings	3 x ϕ 110 Hybrid
Bearing rigidity	680 N/ μ m
Bearing lubrication	Oil-air mist
Spindle cooling	Water glycol
Cooling performance	6 kW
Cooling temperature	The same as machine
Cooling volume approx	15 l/min

Tool Cooling

Internal coolant flow	Standard
Max. Pressure	80 bar
Suitable for dry operation	Yes
Air	Possible
Min. quantities of cooling lubricant	-

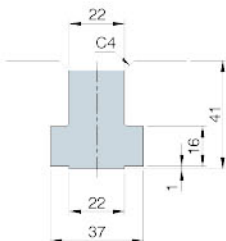


HSK A100 15,000 rpm

Metal Removal Rate	Milling 	Milling 	Drilling 	Threading 
Tool system	HSK A100	HSK A100	HSK A100	HSK A100
Power	32 kW	32 kW	32 kW	32 kW
Material	Steel 60-70 kg/mm ²	Aluminum 7075	Steel 60-70 kg/mm ²	Steel 60-70 kg/mm ²
Machining volume (cm ³ /min)	704	2878	-	-
Tool/edges (ϕ mm)	ϕ 100 / 7	ϕ 100 / 7	ϕ 51	M36
Rotational speed (min ⁻¹)	1146	5140	1435	330
Cutting speed (m/min)	360	1615	230	37
Cutting B x T (mm)	80 x 5.5	80 x 5	-	-
Feed (mm/min)	1600	7196	287	1300

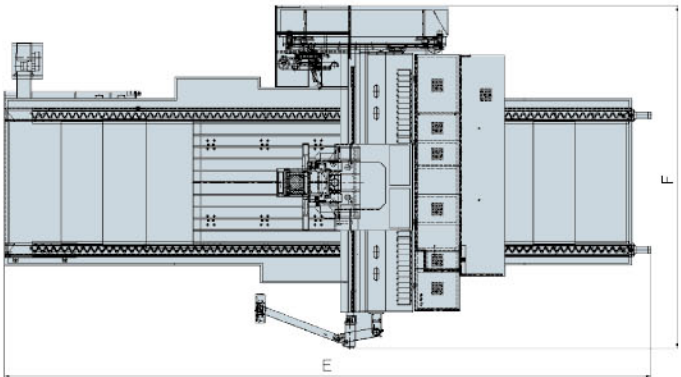
Dimensions

DMC-4000 x 2800

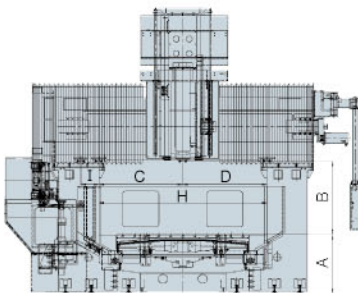


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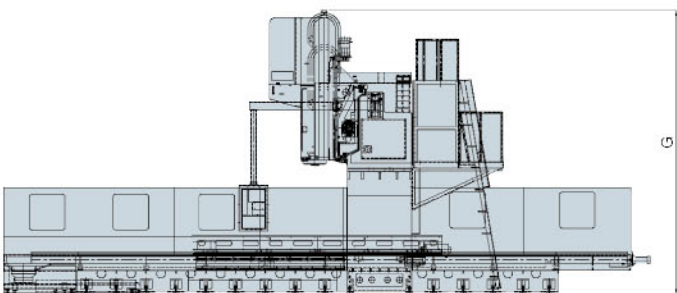
Model Size	DMC-4000x2800x800	DMC-4000x2800x1066
A	1000 mm (39.3")	
B	950 mm (37.4")	1216 mm (47.8")
C	1400 mm (55.1")	
D	1400 mm (55.1")	
E	10900 mm (429")	
F	5680 mm (223.6")	
G	4550 mm (180")	4850 mm (191")
H	2800 mm (110.2")	
I	300 mm (11.8")	
J	4200 mm (165.3")	
K	2200 mm (86.6")	
L	200 mm (7.8")	



Top View (floor space required)



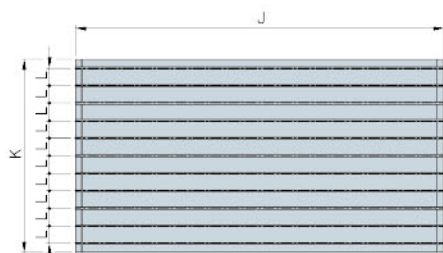
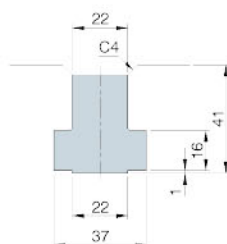
Front View



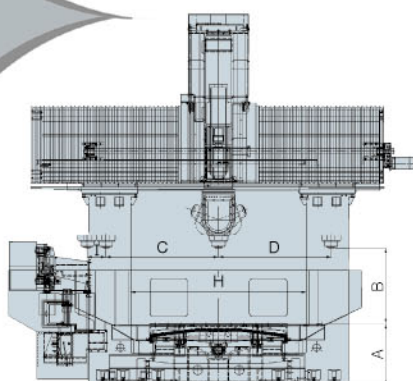
Side View

Dimensions

DMC-4000 x 2800 + 5A

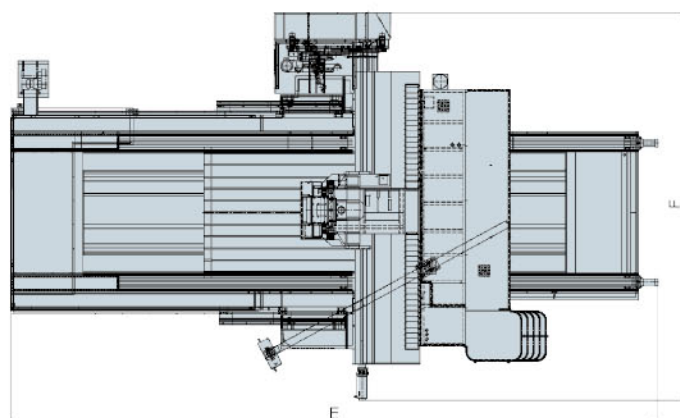


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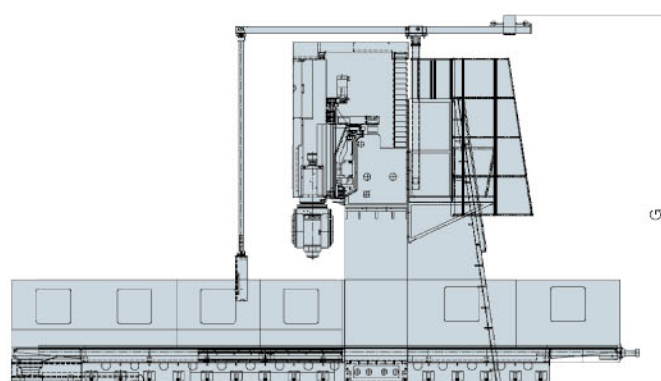


Front View

Model Size	DMC-4000x2800+5A (M5A)	DMC-4000x2800+5A (G5A)
A	1000 mm (39.3")	
B	1216 mm (47.8")	
C	1800 mm (70.8")	
D	1800 mm (70.8")	
E	10900 mm (429")	
F	6500 mm (256")	
G	6280 mm (247.2")	6500 mm (256")
H	2800 mm (110.2")	
I	300 mm (11.8")	
J	4200 mm (165.3")	
K	2200 mm (86.6")	
L	200 mm (7.8")	

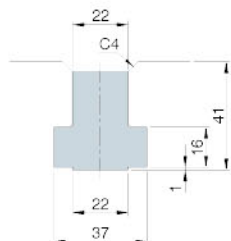


Top View (floor space required)

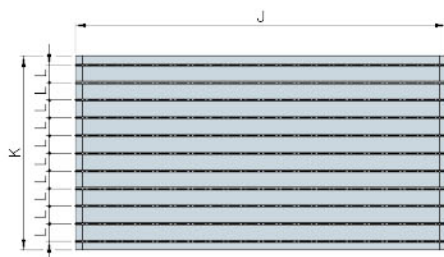


Side View

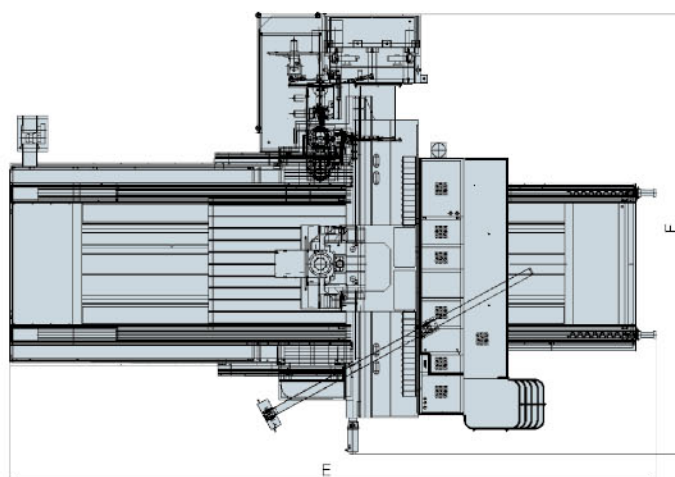
DMC-4000 x 2800 + 5F



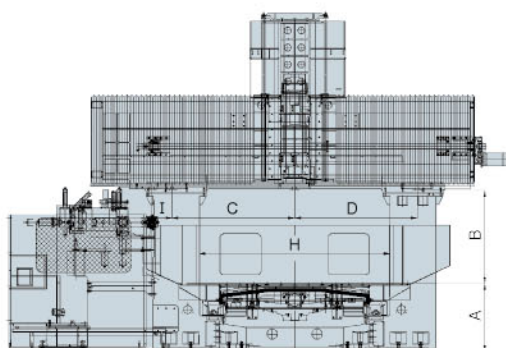
Model Size	DMC-4000x2800+5F
A	1000 mm (39.3")
B	1366 mm (53.7")
C	1800 mm (70.8")
D	1800 mm (70.8")
E	10900 mm (429")
F	7400 mm (291.3")
G	5800 mm (228.3")
H	2800 mm (110.2")
I	300 mm (11.8")
J	4200 mm (165.3")
K	2200 mm (86.6")
L	200 mm (7.8")



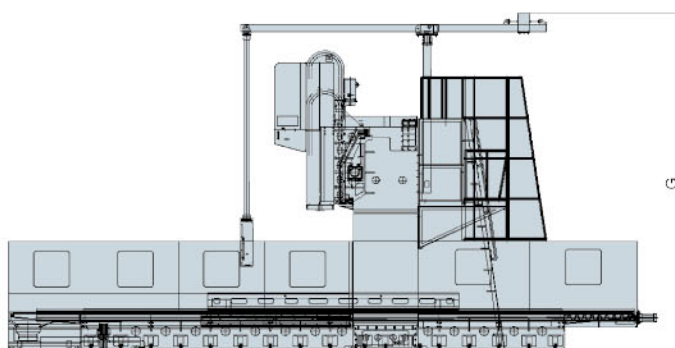
Table



Top View (floor space required)



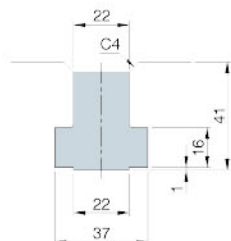
Front View



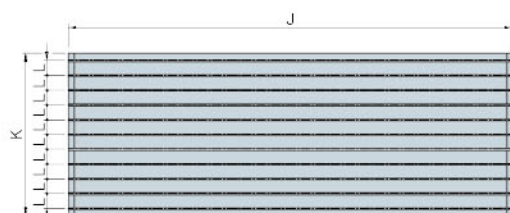
Side View

Dimensions

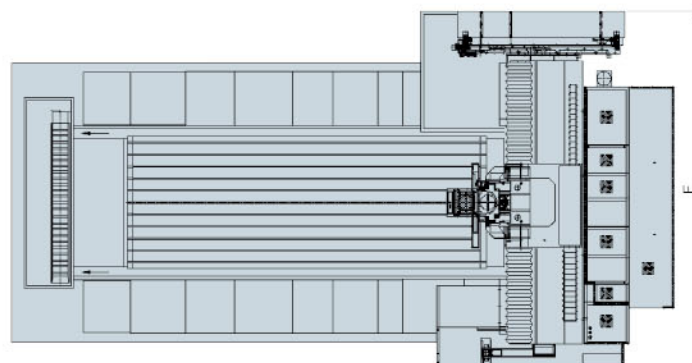
SDMC-6000 x 2800 x 800 / SDMC-6000 x 2800 x 1066



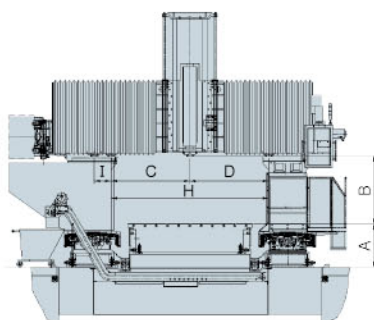
Model Size	SDMC-6000x2800x800	SDMC-6000x2800x1066
A	765 mm (30.1")	
B	950 mm (37.4")	1216 mm (47.8")
C	1400 mm (55.1")	
D	1400 mm (55.1")	
E	11200 mm (441")	
F	6000 mm (236.2")	
G	4265 mm (167.9")	4531 mm (178.3")
H	2800 mm (110.2")	
I	300 mm (11.8")	
J	6000 mm (236.2")	
K	2200 mm (86.6")	
L	200 mm (7.8")	



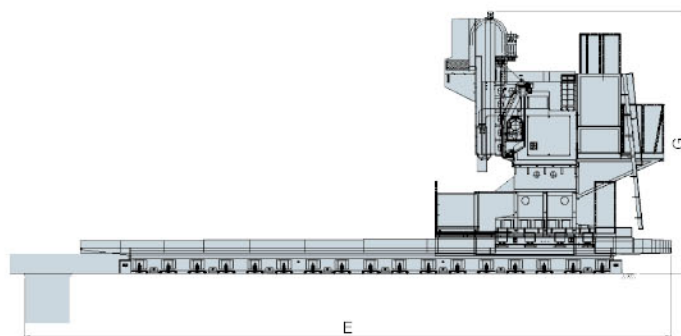
Table



Top View (floor space required)



Front View



Side View

Specifications

Model Item		DMC-	DMC-	DMC-4000x2800+5A		DMC-	SDMC-	SDMC-	
		4000x2800x800	4000x2800x1066	M5A	G5A	4000x2800+5F	6000x2800x800	6000x2800x1066	
Distance between columns		2800 mm (110.2")					2800 mm (110.2")		
Table size		4200 x 2200 mm (165.3" x 86.6")					6000x2200 mm (236.2"x86.6")		
X axis travel		4000 mm (157.4")					6000 mm (236.2")		
Y axis travel		2800 mm (110.2")		3600 mm (141.7")			2800 mm (110.2")		
Z axis travel		800 mm (31.5")	1066 mm (42")	1066 mm (42")		1066mm (42")	800 mm (31.5")	1066 mm (42")	
Spindle nose to table		150~950 mm (5.9"~37.4")	150~1216 mm (5.9"~47.9")	150~1216 mm (5.9"~47.9")		300~1366 mm (11.8"~53.7")	150~950 mm (5.9"~37.4")	150~1216 mm (5.9"~47.9")	
Spindle taper		BT-50 / CAT-50		HSK A63	HSK A100	BT-50 / CAT-50	BT-50 / CAT-50		
Spindle diameter		φ 90 mm (φ 3.5")		-		φ 90 mm (φ 3.5")	φ 90 mm (φ 3.5")		
Spindle speed		6000 rpm Hi-Lo Gear		50~20000 rpm	50~10000 rpm	10~6000 rpm (Vertical) 10~2000 rpm(Horizontal)	6000 rpm Hi-Lo Gear		
Spindle motor		22 / 26 kW		21 / 24 kW	30 / 36 kW	22 / 26 kW	22 / 26 kW		
X-Y-Z rapid traverse		12~12~10 m/min					12~12~10 m/min	10~10~10 m/min	
X-Y-Z cutting feed		1-10000 mm/min					1-10000 mm/min	1-10000 mm/min	
ATC	Adjacent pockets max. tool dia.	φ 125 mm (φ 4.9")		φ 75 mm (φ 3")	φ 125 mm (φ 4.9")	φ 125 mm (φ 4.9")	φ 125 mm (φ 4.9")		
	No. of tools	40 tools Std. (60, 80, 120 Opt.)					40 tools Std. (60, 80, 120 Opt.) Vertical & Horizontal tool change	40 tools Std. (60, 80, 120 Opt.)	
	Max. tool diameter	φ 200 mm (φ 7.8")		φ 100 mm (φ 3.9")		φ 200 mm (φ 7.8")			
	Max. tool length	400 mm (15.7")		320 mm (12.6")		400 mm (15.7")			
	Max. tool weight	20 kg (44 lb)		10 kg (22 lb)		20 kg (44 lb)			
	Tool selection	Bi-direction random type, Shortest path							
Table load capacity		20000 kg (44000 lb)		20000 kg (44000 lb)		20000 kg (44000 lb)	3000 kg/m² (614 lb/ft²)		
Dimensions	Length	10900 mm (429")		10900 mm (429")		10900 mm (429)	11200 mm (441")		
	Width	5680 mm (223.6")		6500 mm (256")		7400 mm (291.3")	6000 mm (236.2")		
	Height	4550 mm (180")	4850 mm (191")	6280 mm (247.2")	6500 mm (256")	5800 mm (228.3")	4265 mm (167.9")	4531 mm (178.3")	
Machine weight		64200 kg (141400 lb)	66200 kg (145800 lb)	71000 kg (156400 lb)	74000 kg (162800 lb)	74000 kg (162800 lb)	63000 kg (138600 lb)	65000 kg (143000 lb)	

■ All data subject to change without notice.

■ All the specifications are listed with the FANUC CNC system.

Standard Accessories:

1. Coolant system
2. Spindle air blast
3. Heat exchanger
4. Full enclosure
5. Twin screw-type chip conveyors
6. A chain-type chip conveyor
7. Operation box
8. Tools, tool box and various manuals
9. Rigid tapping
10. Spindle oil cooler
11. FANUC 0i-MC controller (for DMC-series)
12. FANUC 18i-MB controller (for SDMC-series)

Optional Accessories:

1. Contact tool setting system (Renishaw TS-27R) or BULM NT-A2 / NT-A3
2. High pressure coolant thru tool tip
3. High pressure coolant thru spindle
4. 60, 80, 120 tools
5. Workpiece measuring system (Renishaw OMP-60) or BULM TC-50
6. Z travel 1066mm.
7. 5-Face head
8. 5-Axis head
9. 90° milling head
10. Multiangular milling head
11. Twin spindle-2H
12. Manual guide i / Oi (0i/MC) ; Manual guide i (18i/MB / 21i/MB)

CNC Control Specs

O: Std. △: Opt. -: Nil

Item	Function	Specifications	HEIDENHAIN		FANUC			SIEMENS	
			TNC410	iTNC530	18iMB	21iMB	0iMC	810D	840D
Control axes	Standard number of control axes	axes	4	3	3	3	3	4	4
	No. of simultaneously controlled axes	axes	3	3	3	3	3	4	4
Input commands	Least detection increment	1μ	1μ	0.1μ	1μ	1μ	1μ	1μ	1μ
	Least programmable increment	1μ	1μ	0.1μ	1μ	1μ	1μ	1μ	1μ
	Inch/metric conversion	G20/G21	0	0	0	0	0	0	0
	Absolute/incremental command	G90/G91	0	0	0	0	0	0	0
	Input buffer	word/characters	1024	unlimited	6	6	1	unlimited	unlimited
	Pre-read buffer (No-of block)	block	30	256	180	80	20	100	300
	ISO/EIA automatic identification		0	0	0	0	0	0	0
	RS232-C interface		0	0	0	0	0	0	0
Interpolation	Positioning (interpolation)	G00	0	0	0	0	0	0	0
	Linear interpolation	G01	0	0	0	0	0	0	0
	Circular interpolation	G02/G03	0	0	0	0	0	0	0
	Helical interpolation		0	0	0	0	0	0	0
	Rigid Tapping		0	0	0	0	0	0	0
Program	Memory capacity		256 KB	6 GB	640M	640M	640M	1.5MB	2.5MB
	No. of programs stored		100	unlimited	200	200	200	unlimited	unlimited
	Background editing		0	0	0	0	0	0	0
Spindle functions	S code output 4-digit BCD-binary	S4BCD	0	0	0	0	0	0	0
	Spindle rate	%	0-150		50-150			50-200	50-200
Feed	Per-minute		0	0	0	0	0	0	0
	Rapid traverse rate	low25%,50%,100%	-	-	0	0	0	0	0
	Cutting feed rate	0%-150%	0	0			0-200		
	Handle feed rate	x1,x10,x100	-	-	0	0	0	0	0
Miscellaneous function	M-code	M2(BCD)	0	0	0	0	0	0	0
Coordinate system	Automatic coordinate system setting		-	-	0	0	0	0	0
	Machine coordinate system		0	0	0	0	0	0	0
	Work coordinate system	G54-G59	0	0	0	0	0	0	0
	Coordinate system setting	G92	0	0	0	0	0	0	0
	Manual reference point return		0	0	0	0	0	0	0
	Automatic reference point return	G28/G29	-	-	0	0	0	0	0
	2nd reference point return	G30	-	-	0	0	0	0	0
	Reference point return verify	G27	-	-	0	0	0	0	0
Tool function	Tool command	T2 BCD	0	0	0	0	0	0	0
	Tool length offset	G43/G44/G49	-	-	0	0	0	0	0
	Cutter compensation C	G40/G41/G42	0	0	0	0	0	0	0
	Number of offset sets		999	999	400	400	400	unlimited	unlimited
Operation	Single block		0	0	0	0	0	0	0
	Block skip		0	0	0	0	0	0	0
	Dry run		0	0	0	0	0	0	0
	Machine lock		△	△	0	0	0	△	△
	Option stop	M01	0	0	0	0	0	0	0
	Miscellaneous function lock	M.S.T.lock	0	0	0	0	0	0	0
	Manual/Absolute ON/OFF		0	0	0	0	0	0	0
	PLC switch		0	0	0	0	0	0	0
Programming support function	Sub-program control	M98, M99	0	0	0	0	0	0	0
	Corner chamfering/corner rounding		0	0	△	△	0	0	0
	Canned cycle for drilling	G80-G89	0	0	0	0	0	0	0
	Automatic corner override		0	0	△	△	0	0	0
	User macro		0	0	0	0	0	0	0
	No. of variable command sets		unlimited	unlimited	500	500	500	unlimited	unlimited
	Backlash compensation		0	0	0	0	0	0	0
	Memory-type pitch error compensation		0	0	0	0	0	0	0
	Coordinate system rotation	G68/G69	0	0	△	△	0	0	0
Measurement function	Scaling	G50/G51	0	0	△	△	0	0	0
	Polar coordinate command	G15/G16	0	0	△	△	0	0	0
	Skip function		0	0	0	0	0	0	0
Safe protect	Tool length automatic measurement		0	0	△	△	△	0	0
	Emergency stop		0	0	0	0	0	0	0
	Travel protected		0	0	0	0	0	0	0
Other	Program protected		0	0	0	0	0	0	0
	CRT		10.4" LCD	15" LCD	10.4"LCD	10.4"LCD	7.2"MON LCD	10.4"LCD	10.4"LCD
	MDI	Full key	0	0	0	0	small type	0	0
	Languages	English/Japaness	10	10	7	7	7	7	7
	Parts count		0	0	0	0	0	-	-
	Run hour display and parts count		0	0	0	0	0	-	-
	Graphic display		0	0	0	0	0	0	0
	4th axis interface		0	△	0	0	0	0	0
	Menu programming		0	0	0	0	0	0	0
	Conversational programming with graphic function	Manual guide	0	0	△	△	△	△	△
	Mirror function		0	0	0	0	0	0	0
	Chinese, French, German, Italian, Spanish		0	0	0	0	0	0	0
	High-precision contour control	64 bit RISC	-	△	△	-	-	△	△
	Data server (HD)		-	0	△	△	△	△	△
	ETHERNET		-	0	0	0	△	△	△

■ All data subject to change without notice.

5-Axis and 5-Face CNC Control Specs

O: Std. △: Opt. -: Nil

Item	Function	Specifications	5-FACE	5-Axis
			18/MB	18/MB5
Control axes	Standard number of control axes	axes	4	5
	No. of simultaneously controlled axes	axes	3	5
Input commands	Least detection increment	1μ	1μ	1μ
	Least programmable increment	1μ	1μ	1μ
	Inch/metric conversion	G20/G21	0	0
	Absolute/incremental command	G90/G91	0	0
	Input buffer	word/characters	128	128
	Pre-read buffer (No-of block)	block	180	600
	ISO/EIA automatic identification		0	0
Interpolation	RS232-C interface		0	0
	Positioning (interpolation)	G00	0	0
	Linear interpolation	G01	0	0
	Circular interpolation	G02/G03	0	0
Program	Helical interpolation		△	△
	Memory capacity		160 M	160 M
	No. of programs stored		64	64
	Background editing		0	0
Spindle functions	S code output 4-digit BCD-binary	S4BCD	0	0
	Rigid tapping		0	0
	Spindle rate	%	200	200
Feed	Lock-ahead Acc/Dcc		0	0
	Bell-shaped Acc/Dcc		0	0
	Rapid traverse rate	low25%,50%,100%	0	0
	Cutting feed rate		0-200%	0-200%
	Handle feed rate	x1,x10,x100	0	0
Miscellaneous function	M-code	M2(BCD)	0	0
Coordinate system	Automatic coordinate system setting		0	0
	Machine coordinate system		0	0
	Work coordinate system	G54-G59	0	0
	Coordinate system setting	G92	0	0
	Manual reference point return		0	0
	Automatic reference point return	G28/G29	0	0
	2nd reference point return	G30	0	0
	Reference point return verify	G27	0	0
Tool function	Addition work-coordinate system(48set)		0	0
	Tool command	T2 BCD	0	0
	Tool length offset	G43/G44/G49	0	0
	Cutter compensation C	G40/G41/G42	0	0
	Number of offset sets		400	400
	Tool length compensation Tool axis direction		-	0
Operation	3D cutter compensation		-	0
	Single block		0	0
	Block skip		0	0
	Dry run		0	0
	Machine lock		0	0
	Option stop	M01	0	0
	Miscellaneous function lock	M.S.T.lock	0	0
	Manual Absolute ON/OFF		0	0
	PLC switch		0	0
	Manual handle interruption		0	0
Programming support function	Tool direction handle feed		-	0
	Sub-program control	M98, M99	0	0
	Corner chamfering/corner rounding		△	△
	Canned cycle for drilling	G80-G89	0	0
	Automatic corner override		△	△
	User macro		0	0
	No. of variable command sets		500	100
	Backlash compensation		0	0
	Memory-type pitch error compensation		0	0
	Coordinate system rotation	G68/G69	0	0
	Scaling	G50/G51	0	0
	Polar coordinate command	G15/G16	0	0
Measurement function	3D coordinate system conversion		0	0
	Programming data input	G10	0	0
	Skip function		0	0
Safe protect	Tool length automatic measurement		△	△
	Emergency stop		0	0
	Travel protected		0	0
Other	Program protected		0	0
	CRT		10.4"	10.4"
	Data server		△	0
	HPCC by 64bit RISC		△	0
	Run hour display and parts count		0	0
	Graphic display		0	0
	Conversational programming with graphic function	Manual guide	△	△
	Language	English	0	0
	Chinese, French, German, Italian, Spanish		0	0

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