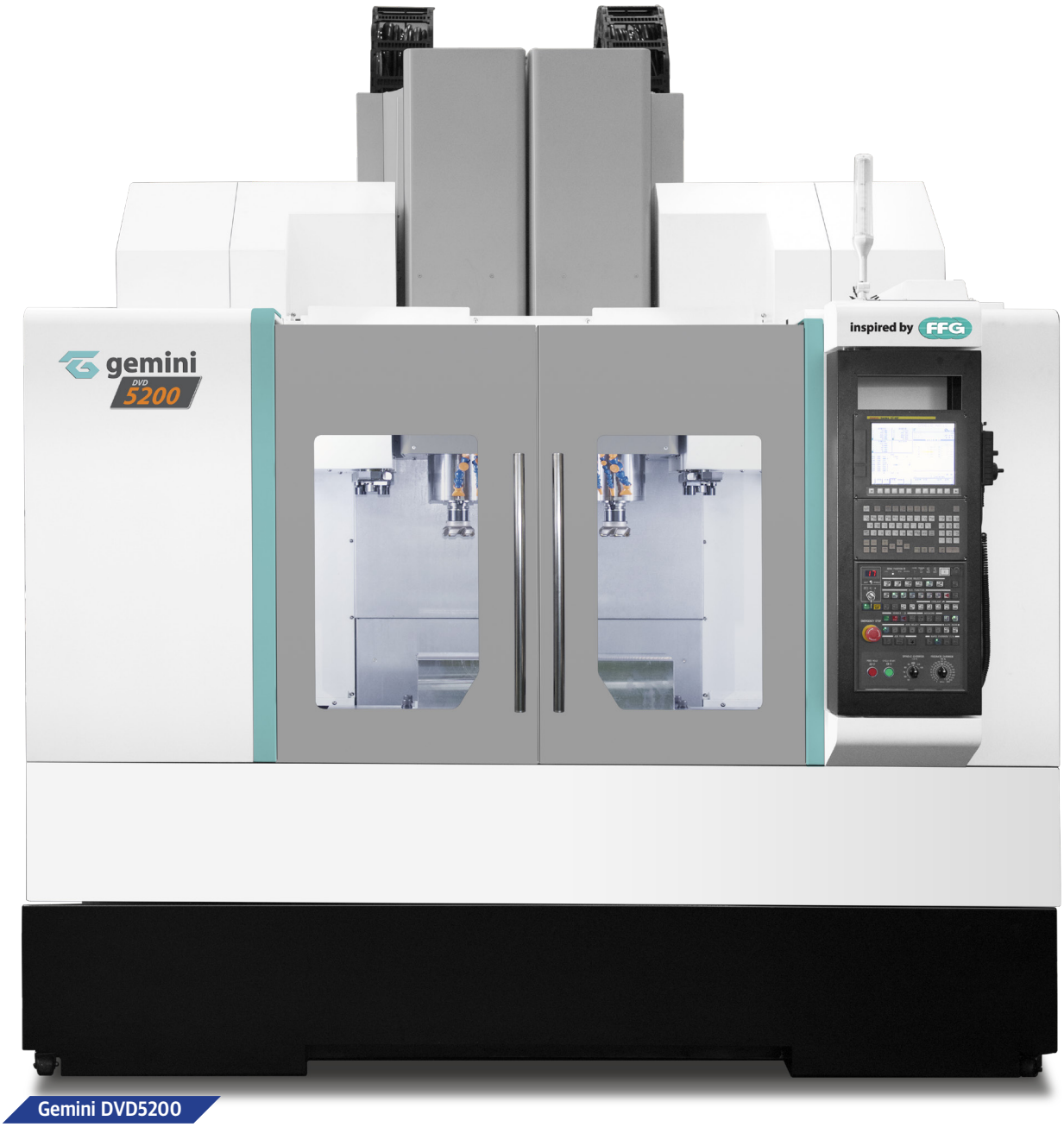
FFG DMC

DUO HEAD SERIES

DUO HEAD TYPE VERTICAL MACHINING CENTER

The odd, saving you from the dull

gemini



Gemini DVD5200

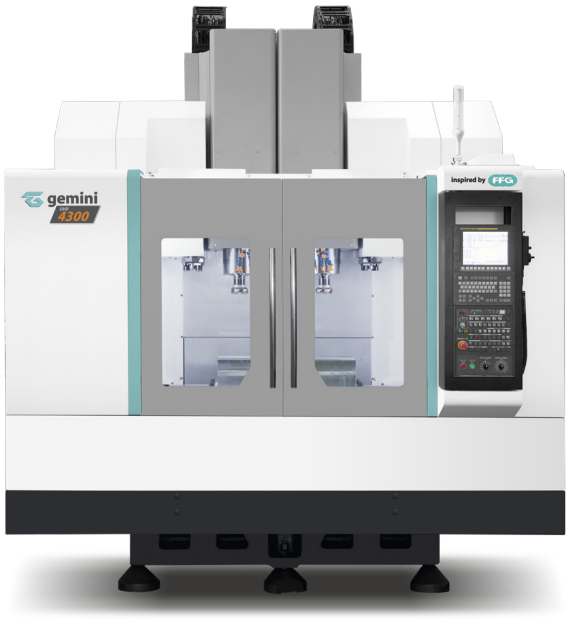
gemini SERIES

Duo Head Type **Vertical Machining Center**

The best productivity and innovation out of its class.

Gemini Series, the highest speed and strongest power with a wide range of processing capabilities, achives innovation in productivity and stability.

Gemini DVD5200P



Gemini DVD4300

Gemini DVD5700

Gemini DVD6500

- Hyper productivity with 2-HEAD and 2-ATC
- Independent structure Z1, Z2 allows individual tool offset
- U/V axis Micro adjustment of distance between 2 spindles save the jig setting time on X/Y aixs
- Alternative long Y axis option for automation (L Type)
- Unique APC structure of table moving method (P Type)

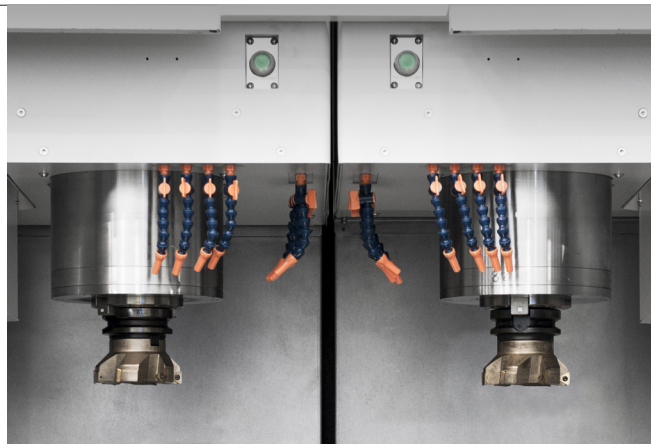
Maximum growth of Productivity by simultaneous machining

- 25% reduction in total investment cost compared to standard 1-headed machine
- Minimize personnel expenses and plant operation costs
- Under the same machining conditions
  - At least 2 times better productivity the equivalent
  - Up to 40% space saving aspect of footprint

HIGH-PRECISION STRUCTURE

Productivity and stability innovation base on simultaneous machining.

- Reduce 25% total investment cost compared to standard 1-headed machine
- Minimize personnel expenses and plant operation costs
- Under the same machining process conditions
  - At least **2 times** better productivity the equivalent
  - Up to **40%** space saving aspect of footprint

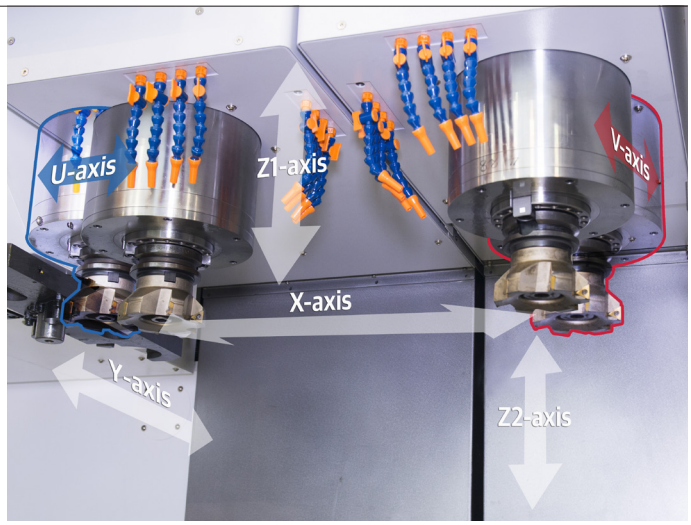


U-AXIS, V-AXIS(OPT.) SYSTEM

Roller-type guideways, adopted as standard provide both high durability and rigidity for axes feed.

Tool length can be easily adjusted by W-axis.

With U-axis and optional V-axis, various products can be efficiently processed.



* Opt. V axis

Traverse (X/Y/Z)

Gemini DVD4300	Gemini DVD4300L	Gemini DVD4300P	Gemini DVD5700
720/430/360	720/430(+280)/360	720/430(+370)/360	1,040/570/360
Gemini DVD5200	**Gemini DVD5200L**	**Gemini DVD5200P**	**Gemini DVD6500**
1040/520/600	1040/520(+400)/600	1040/520(+420)/600	1300/670/635

Rapid Traverse (X/Y/Z)

Gemini DVD4300	Gemini DVD4300L	Gemini DVD4300P	Gemini DVD5700
60/60/60 m/min	60/60/60 m/min	60/60/60 m/min	40/40/60 m/min
Gemini DVD5200	**Gemini DVD5200L**	**Gemini DVD5200P**	**Gemini DVD6500**
40/40/40 m/min	40/40/40 m/min	40/40/40 m/min	36/36/36 [36/36/30] m/min

TABLE

Table size and allowable load weight capable to accept diverse jig fixtures installation provide optimized working area and range for mass production.

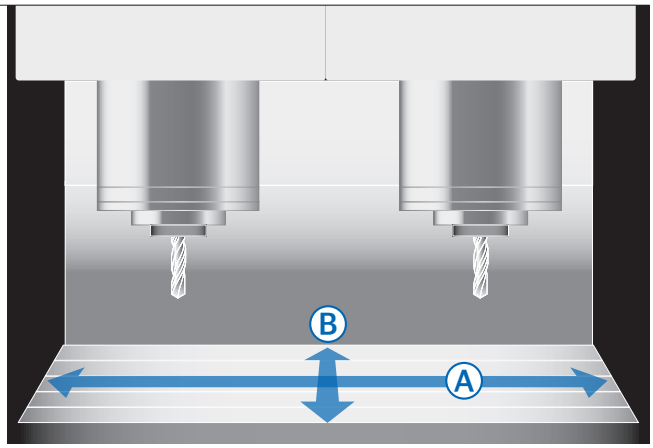


Table Size (AxB) mm

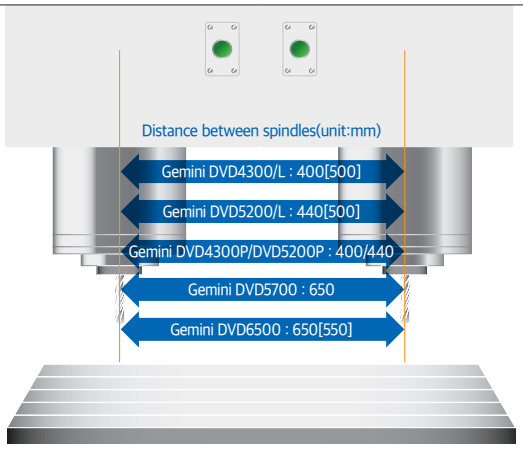
Gemini DVD4300/4300L	Gemini DVD4300P	Gemini DVD5700	Gemini DVD5200/5200L	Gemini DVD5200P	Gemini DVD6500
1040x430	850x430	1500x570	1200x520	950x520	1500x670

Table loading capacity

Gemini DVD4300/4300L	Gemini DVD4300P	Gemini DVD5700	Gemini DVD5200/5200L	Gemini DVD5200P	Gemini DVD6500
400 kg	250 kg	800 kg	800 kg	400 kg	1300 kg

SPINDLE

Direct drive spindle is adopted as a standard feature to ensure high productivity and machining accuracy in fairly low noise environment.



Max. Spindle Speed

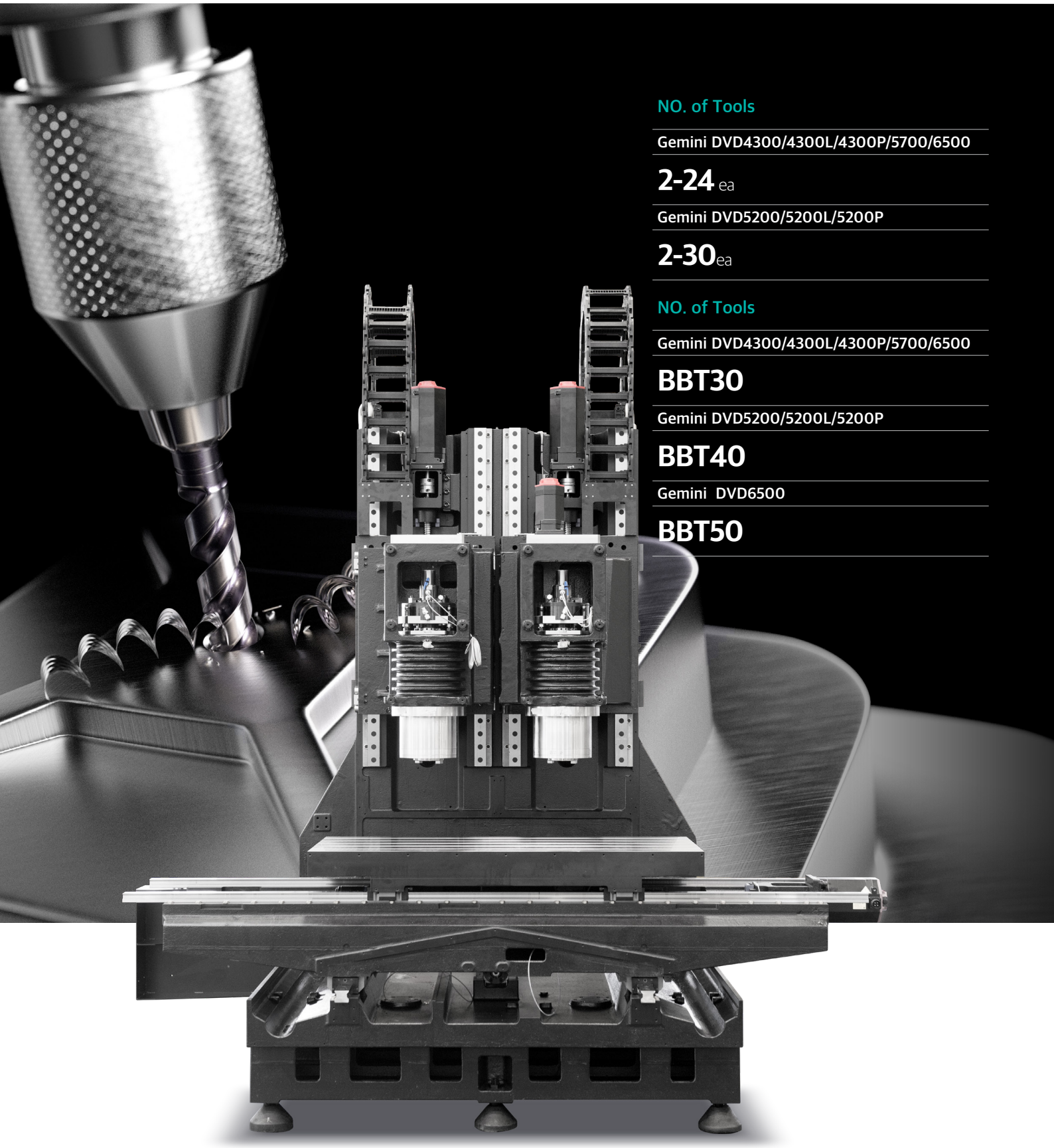
Gemini DVD4300/4300L/4300P	Gemini DVD5700	Gemini DVD5200/5200L/5200P	Gemini DVD6500
12000[15000][24000] rpm	20000 rpm	12000 rpm	8000 [6000] rpm

Spindle Motor

Gemini DVD4300/4300L/4300P/5700	Gemini DVD5200/5200L/5200P	Gemini DVD6500
3.7 / 5.5 / 7.5 [5.5/7.5/11] kW	11/15/18.5 kW	11/15/22 [15/18.5/22] kW

Max. spindle torque

Gemini DVD4300/4300L/4300P/5700	Gemini DVD5200/5200L/5200P	Gemini DVD6500
47.7 N·m (S3 25%)	118 N·m (S3 15%)	353 N·m (442 N·m)



NO. of Tools

Gemini DVD4300/4300L/4300P/5700/6500

2-24 ea

Gemini DVD5200/5200L/5200P

2-30ea

NO. of Tools

Gemini DVD4300/4300L/4300P/5700/6500

BBT30

Gemini DVD5200/5200L/5200P

BBT40

Gemini DVD6500

BBT50

HIGH-PERFORMANCE, DIRECT & BUILT-IN SPINDLE

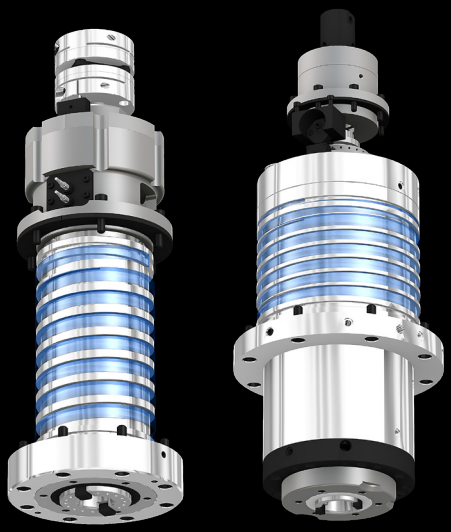
SPINDLE

Directly-coupled Spindle

Directly-coupled Spindle and Motor shortens the spindle acceleration/deceleration time. Super precise and high-speed angular ball bearings for higher speed spindles realize wide range of machining by max 12,000 rpm speed as standard.

Built-in Spindle

Ultra precise and high-speed angular ball bearing for built in spindles realize extra high speed maximum 20,000 rpm and ensure outstanding performance for molding products process.



2 Face-Constrained Spindle

2 faces, Spindle face and taper surface, closely contacted spindle(BBT) increases clamping force, reduces chattering and delivers high speed and super precise machining.

Spindle Cooling

Spindle cooling system has been adopted as option to maintain constanct spindle temparature for reliable machining capability during long hours process. (Std for DVD5200/12K and above, DVD6500/8K and above only)

Option

Various options are available for customer's needs.

Through Spindle Coolant (TSC)

Through spindle coolant (TSC) is offered as optional solution for efficient chip removal as well for enhanced machining performance and products quality improvement.

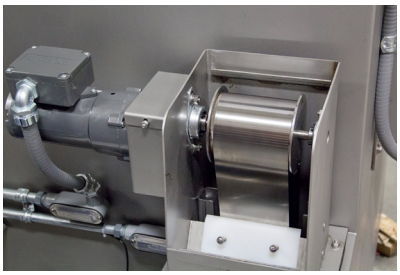
Spindle Cooling Unit

Depending on spindle size, it is offered as standard or option to minimize temperature rising and thermal displacement of the spindle, so as to ensure reliability of spinde and to keep consistency of accuracy and quality on workpiece.

(Opt: DVD4300, DVD6500/6K)

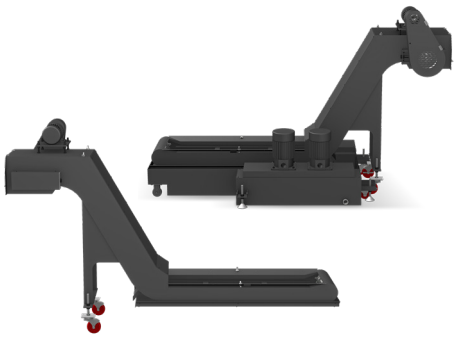
Oil Skimmer

Moisture, floating particles, dirts are skimmed from the coolant tank to refine coolant for the purpose of more cutting force and higher accuracy.



Chip Conveyor

Chip conveyor is offered as option for the efficient cleaning and disposal of heavy amount chips during machining. Hinged belt or magnetic scraper type are available.



Raised Column

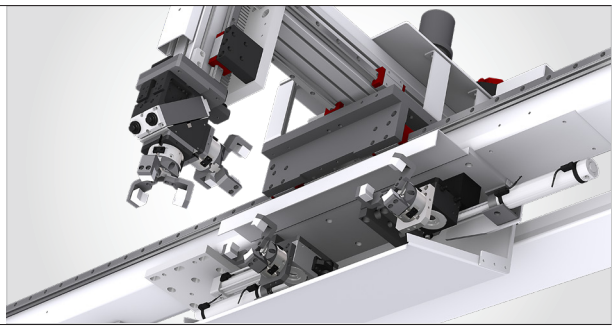
One-piece rigid high column is intended to extend distance from the table top surface to the spindle to avail diverse products machining on the customized fixture.

With accumulated know-how and craftsmanship from machine tools building and automotive parts producing, DMC offers high performance machines and advanced automation line based on up to date technology and reinforces more productivity and higher efficiency of customer production line.

Gantry Automation

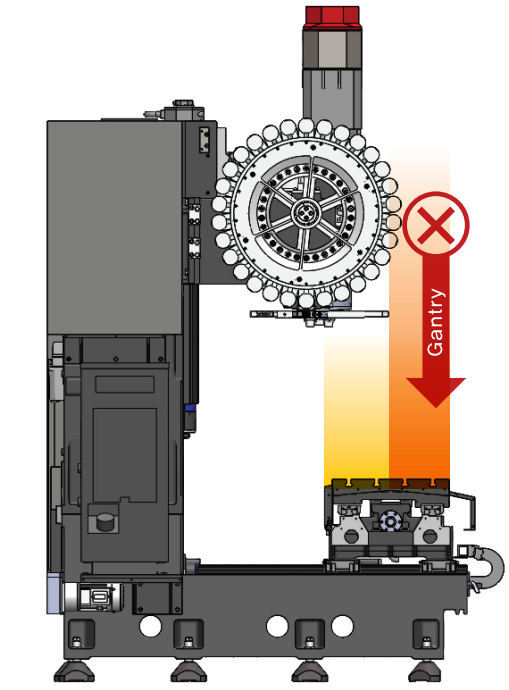
Gantry Loader System

Gantry loader is one of automation system using stocker and gantry loader. Parts in Instocker are automatically transferred to the machine by gantry loader. Gantry loader has good accessibility during machine operation and provides easy monitoring, simple modification of program and less maintenance. Its small footprint takes less space, and helps factory layout optimized.

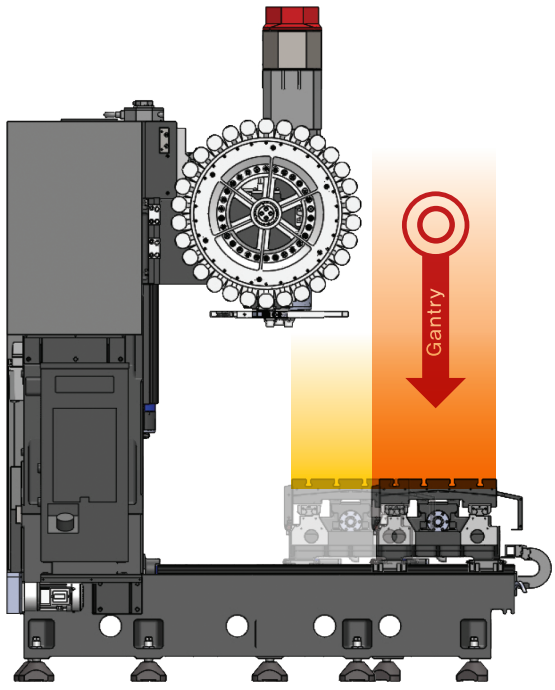


Alternative long Y axis option for automation (Opt.)

· Y-axis STROKE expansion
· Sufficient space to equip various automation systems



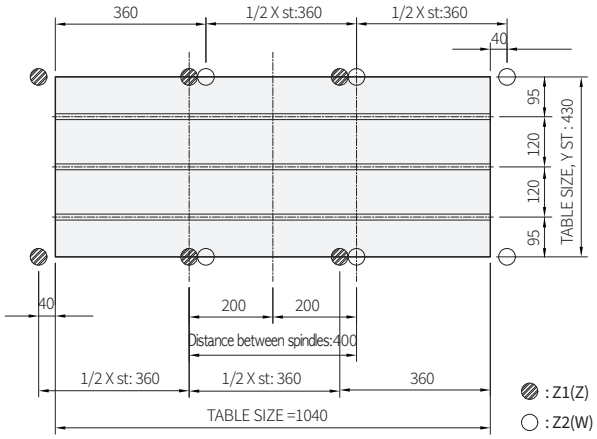
Standard

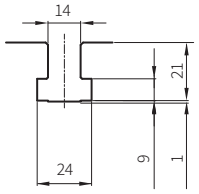


Y-axis Long Type(DVD 4300L/DVD 5200L)

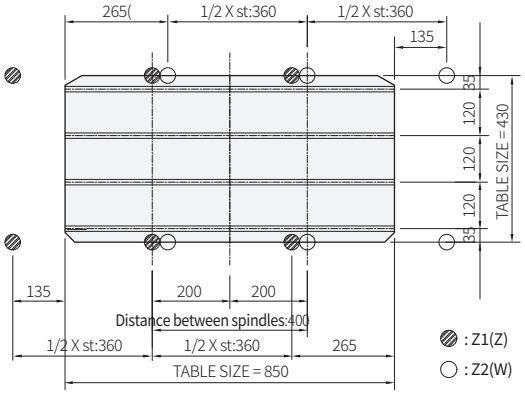
TABLE

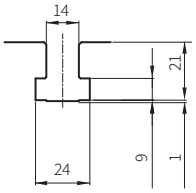
Gemini DVD4300 / 4300L



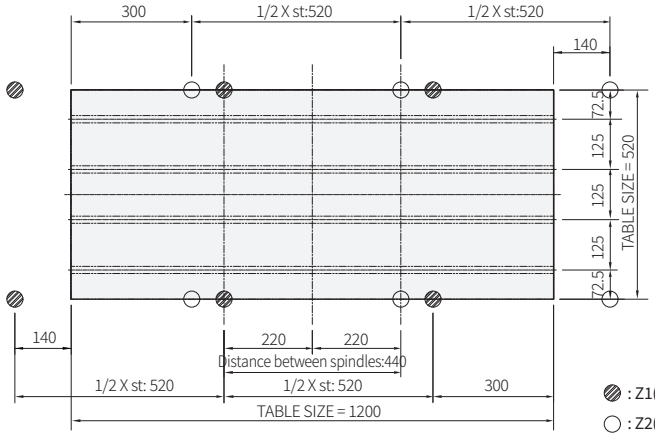


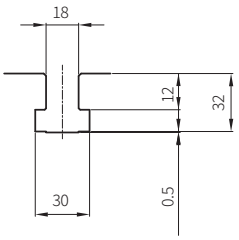
Gemini DVD4300P



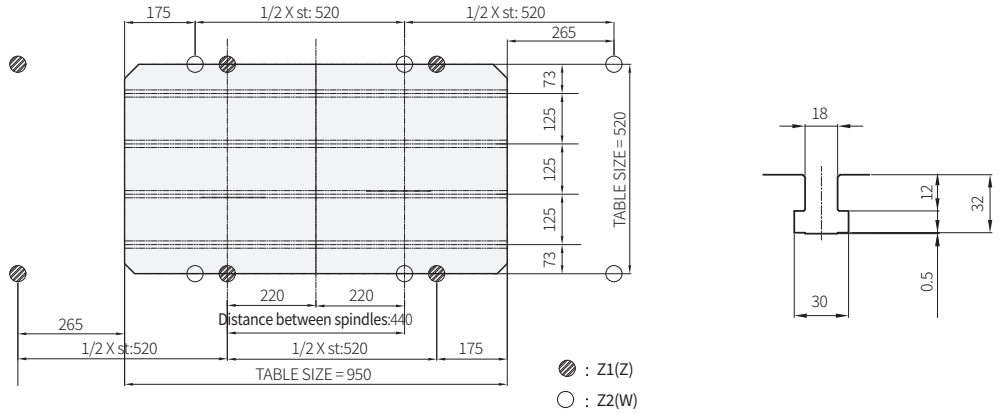


Gemini DVD5200 / 5200L

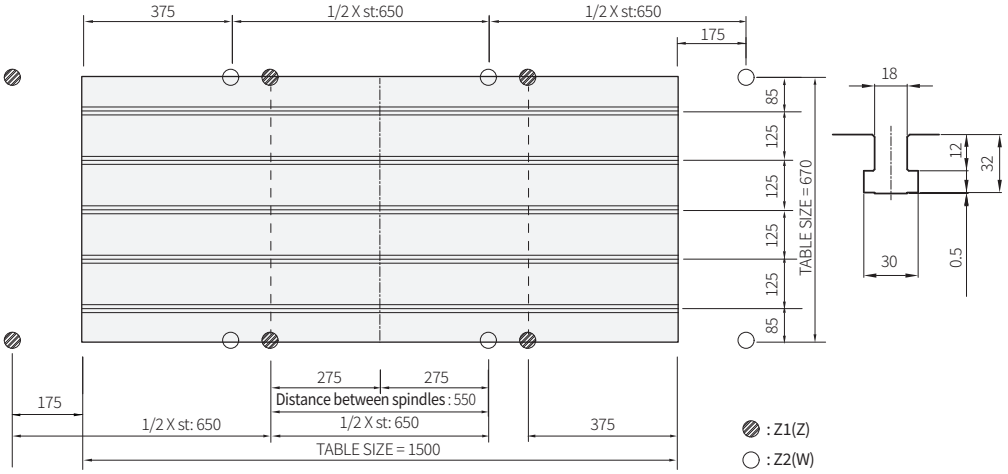




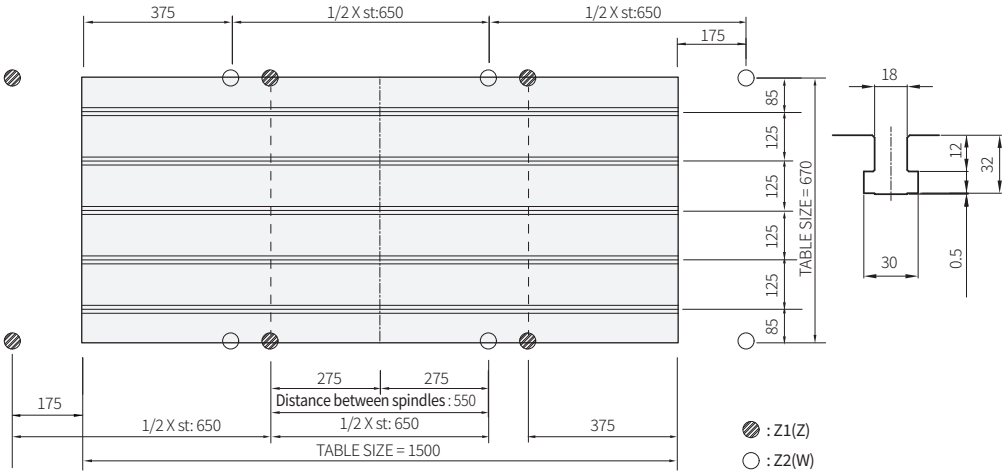
Gemini DVD5200P



Gemini DVD5700



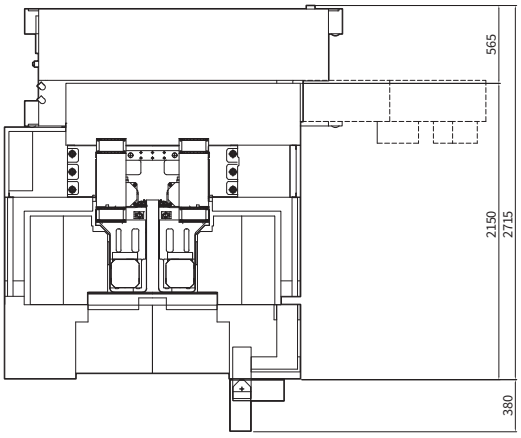
Gemini DVD6500



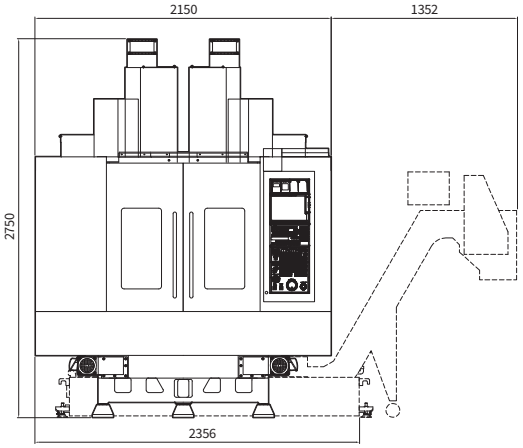
External Dimensions

Gemini DVD4300

Top View

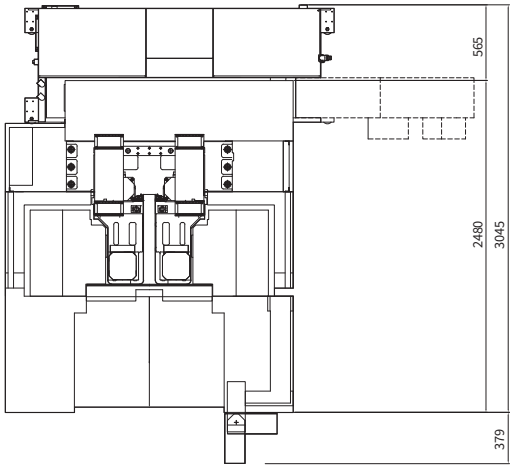


Front View

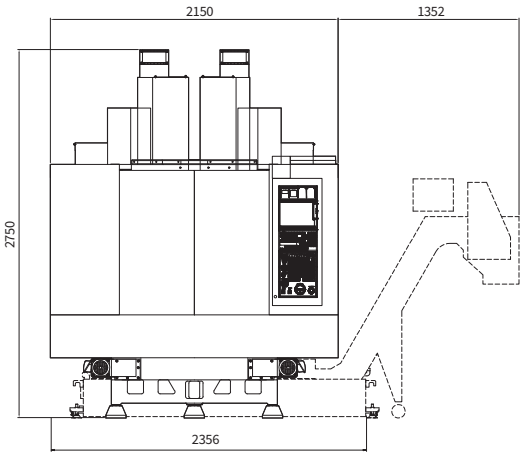


Gemini DVD4300L

Top View

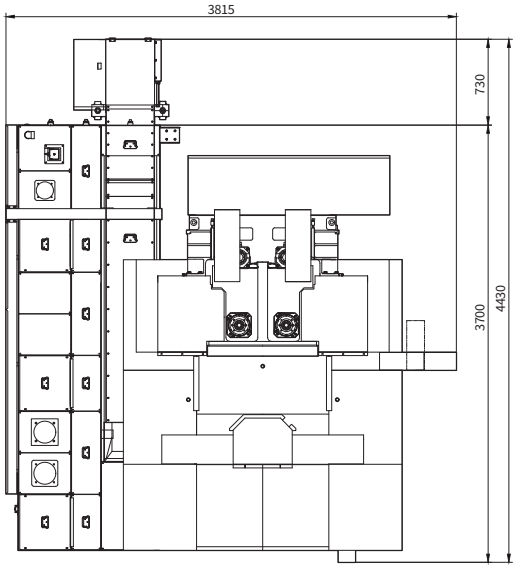


Front View

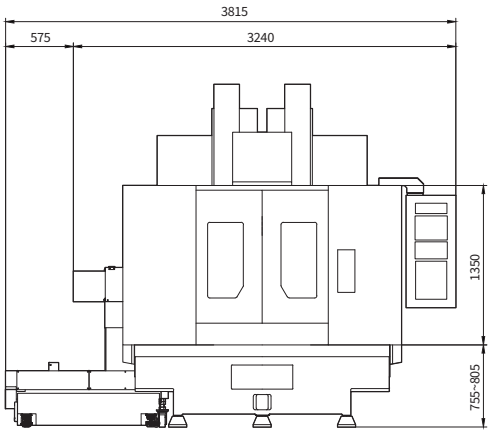


Gemini DVD4300P

Top View

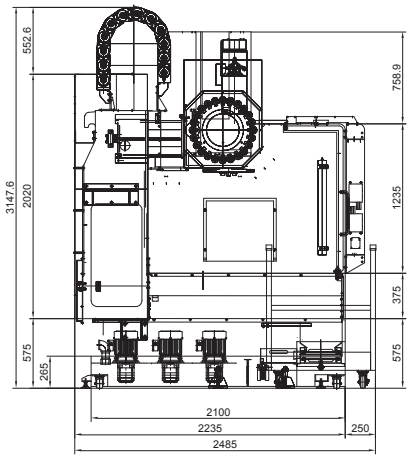


Front View

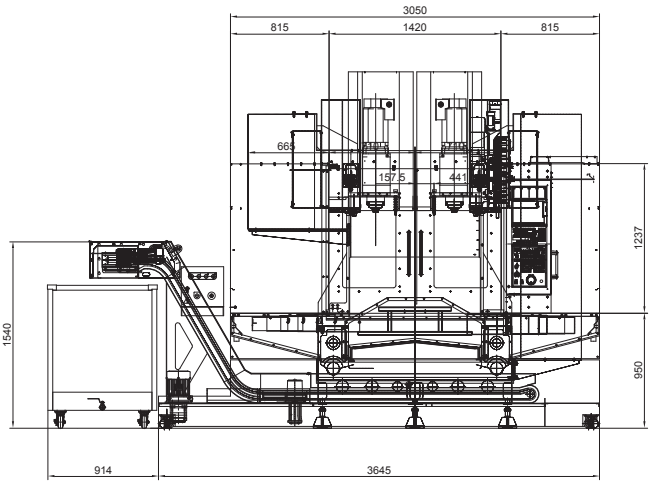


Gemini DVD5200(5700)

Top View

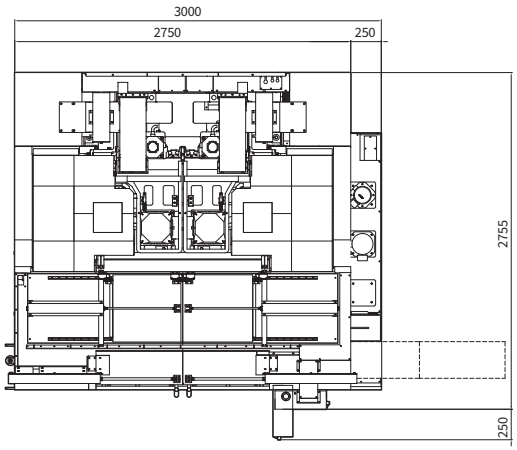


Front View

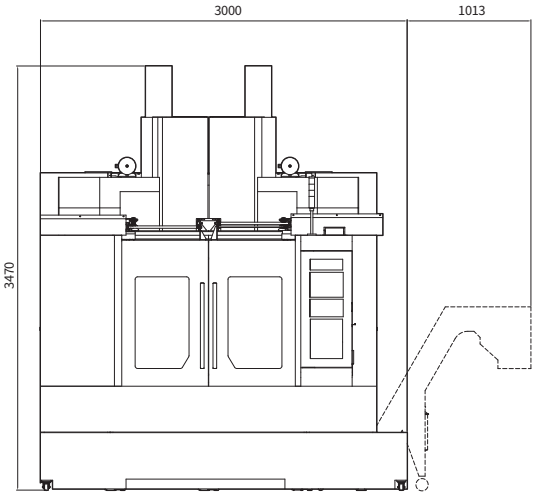


Gemini DVD5200L

Top View

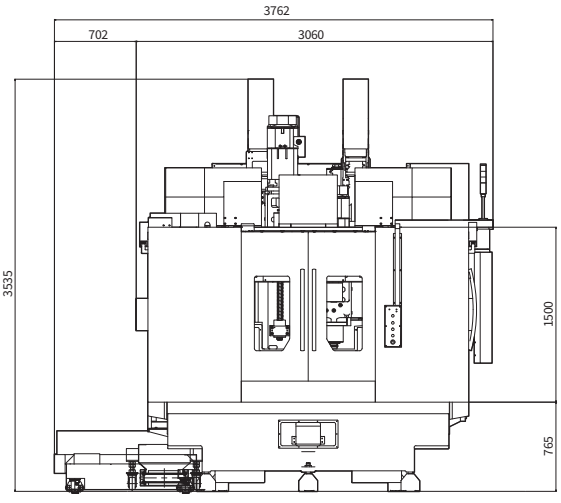


Front View

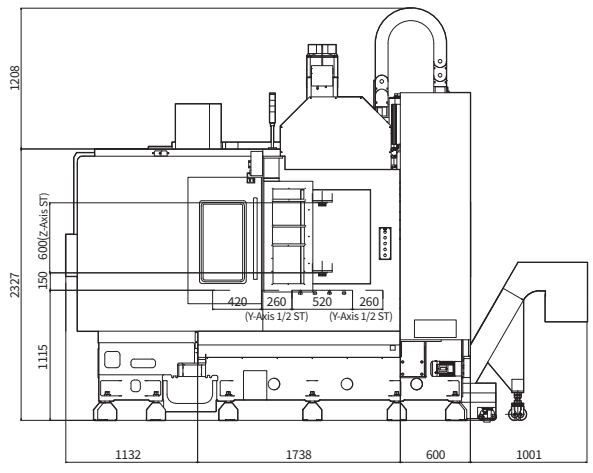


Gemini DVD5200P

Top View



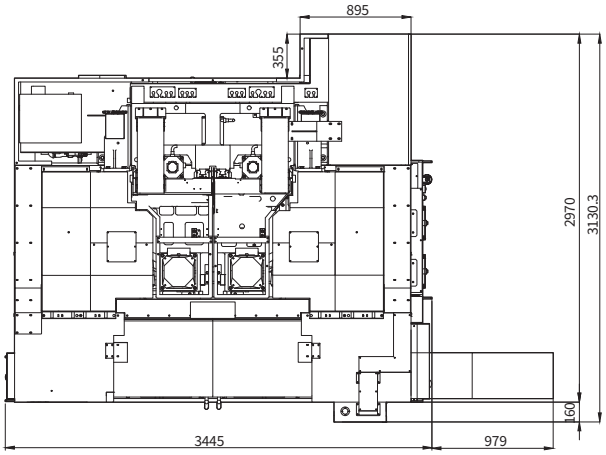
Front View



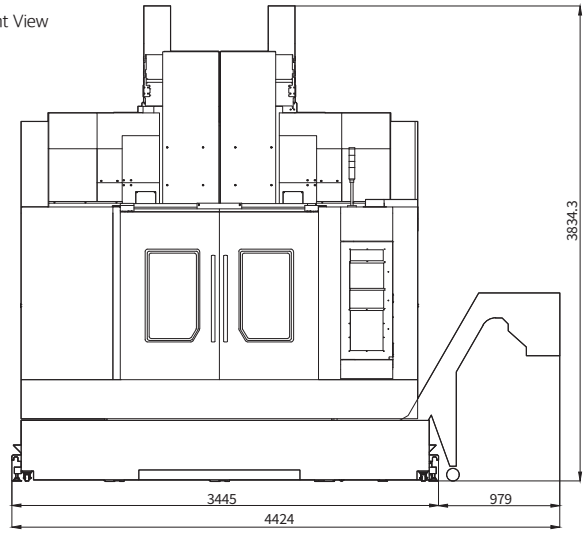
External Dimensions

Gemini DVD6500

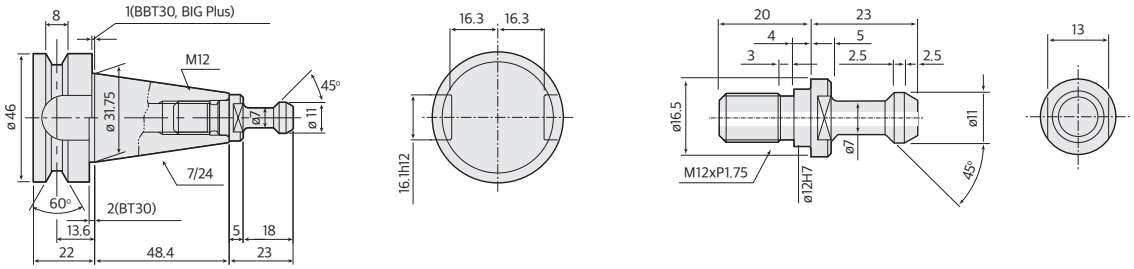
Top View



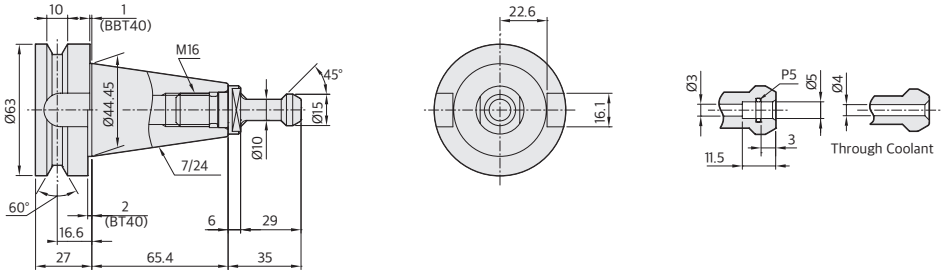
Front View



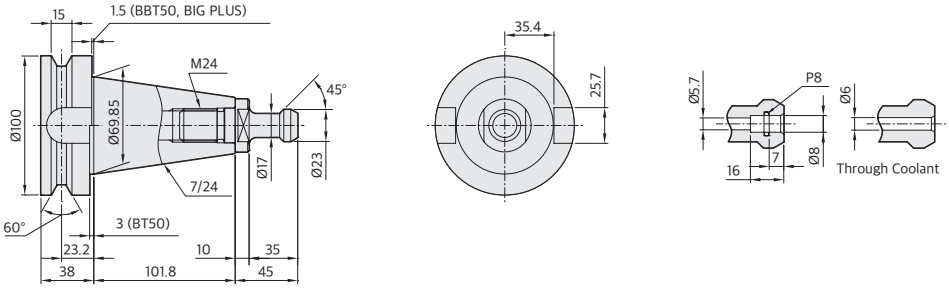
BT30 / BBT30 Tool



BT40 / BBT40 Tool

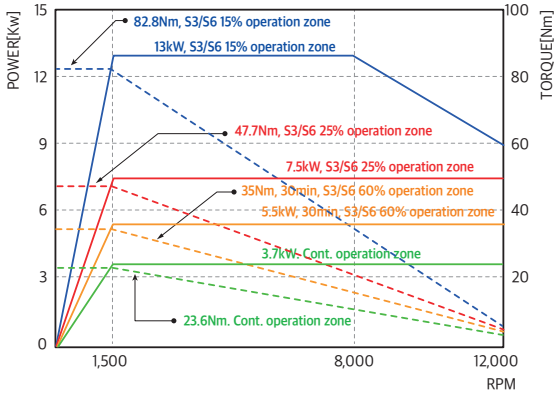


BBT50 Tool

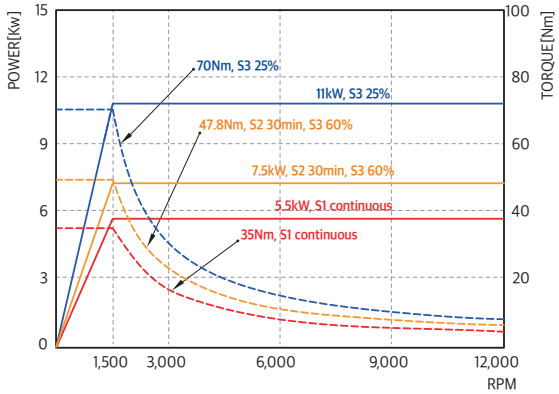


Spindle Power Torque Diagram

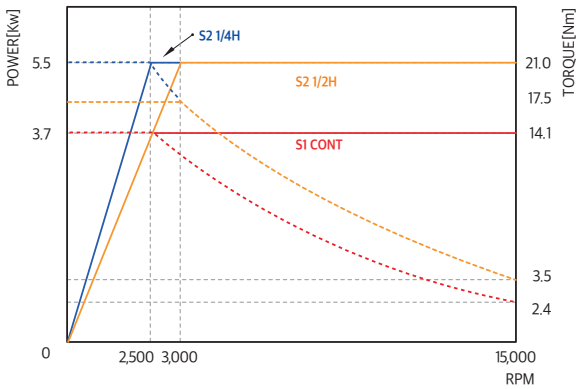
Gemini DVD4300 / BBT30 / STD. / 12,000r/min (FANUC)



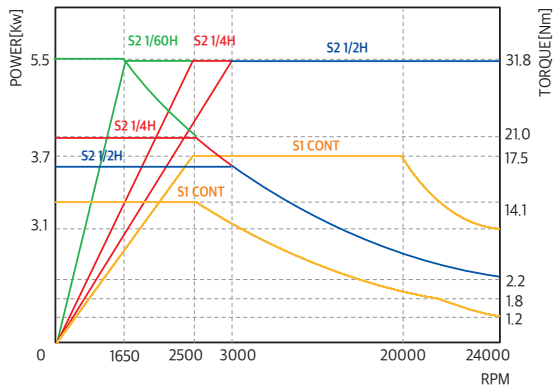
Gemini DVD4300 / BBT30 / OPT. / 12,000r/min (FANUC)



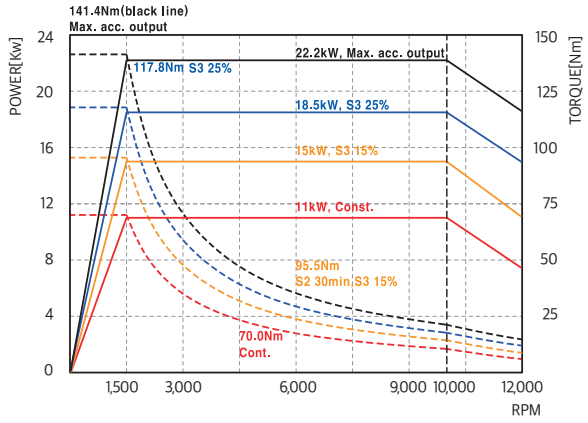
Gemini DVD4300, 5700 / BBT30 / OPT. / 15,000r/min (Mitsubishi)



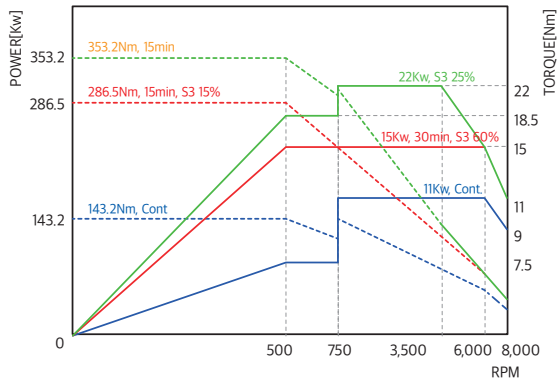
Gemini DVD4300 / BBT30 / OPT. / 24,000r/min (Mitsubishi)



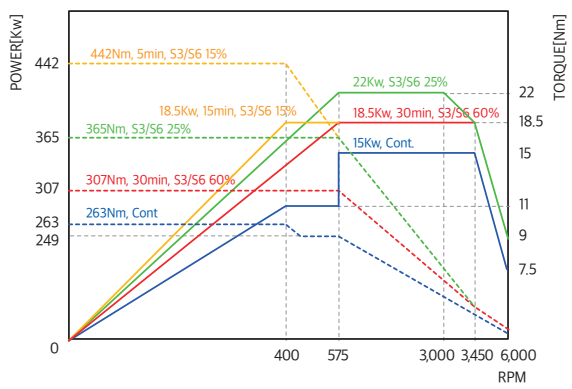
Gemini DVD5200 / BBT40 / STD. / 12,000r/min [6500 OPT.] (FANUC)

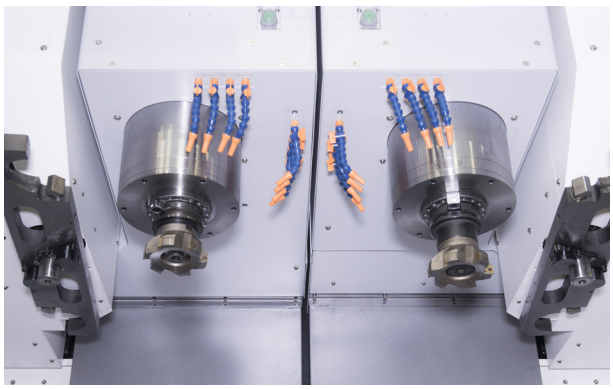


Gemini DVD6500 / BBT50 / STD. / 8,000r/min (FANUC)



Gemini DVD6500 / BBT50 / OPT. / 6,000r/min (FANUC)





SPECIFICATION

Gemini DVD4300 / 4300L / 4300P / 5700 / 5200 / 5200L / 5200P / 6500

ITEM		Unit.	Gemini DVD4300	Gemini DVD4300 L	Gemini DVD4300 P	Gemini DVD5700
Traverse	X / Y / Z1, Z2axis	mm	720 / 430 / 360	720 / 430(+280) / 360	720 / 430(+370) / 360	1,040 / 570 / 360
		inch	28.34 / 16.93 / 14.17	28.34 / 16.92(11.02) / 14.17	28.34 / 16.93(14.56) / 14.17	40.94 / 22.44 / 14.17
	Traverse(U-axis/V-axis)	mm	±1/[±1]	±1/[±1]	±1/[±1]	±1/[±1]
		inch	±0.039/[±0.039]	±0.039/[±0.039]	±0.039/[±0.039]	±0.039/[±0.039]
	Distance Of Table To Spindle Nose	mm	150 ~ 510	150 ~ 510	150 ~ 510	150 ~ 510
		inch	5.91 ~ 20.08	5.91 ~ 20.08	5.91 ~ 20.08	5.91 ~ 20.08
	Distance between Spindles	mm	400 [500]	400 [500]	400	650
		inch	15.75 [19.69]	15.75 [19.69]	15.75	25.59
	Rapid Traverse (X/Y/Z axis)	m/min	60 / 60 / 60	60 / 60 / 60	60 / 60 / 60	40 / 40 / 60
		inch/min	2.362 / 2.362 / 2.362	2.362 / 2.362 / 2.362	2.362 / 2.362 / 2.362	1.574 / 1.574 / 2.362
Table	Table Dimension	mm	1,040 x 430	1,040 x 430	850 x 430	1500 x 570
		inch	40.94 x 16.93	40.94 x 16.93	33.46 x 16.93	59.05 x 22.44
	Max. Loading Weight	kg	400	400	250	800
	Dimension Of T-Slots	mm	14H8 x p120 x 3ea	14H8 x p120 x 3ea	14H8 x p120 x 4ea	14H8 x p120 x 4ea
		inch	0.55H8 x p4.72 x 3ea	0.55H8 x p4.72 x 3ea	0.55H8 x p4.72 x 4ea	0.55H8 x p4.72 x 4ea
Main Spindle	Max. Spindle Speed	min-1	12,000 [15,000][24,000]			
	Max. Spindle Torque	N·m	47.7N·m (S3 25%) [70N·m (S3 25%)]			
	Spindle Motor (Cont./30min/S3 25%)	kW	3.7 / 5.5 / 7.5 [5.5 / 7.5 / 11]	3.7 / 5.5 / 7.5 [5.5 / 7.5 / 11]	3.7 / 5.5 / 7.5 [5.5 / 7.5 / 11]	3.7 / 5.5 / 7.5 [5.5 / 7.5 / 11]
Guide Way			Roller Guide	Roller Guide	Roller Guide	Roller Guide
ATC/MG	Type Of Tool Shank	-	BBT30	BBT30	BBT30	BBT30
	Tool change time(T-T)	sec	1.4	1.4	1.4	1.4
	No. Of Tools	ea	2-24	2-24	2-24	2-24
	Max. Tool Diameter (without adjacent tools)	mm	ø65 [ø125]	ø65 [ø125]	ø65 [ø125]	ø65 [ø125]
		inch	ø2.56 [ø4.92]	ø2.56 [ø4.92]	ø2.56 [ø4.92]	ø2.56 [ø4.92]
	Max. Tool Length/Weight	mm/kgf	200/3	200/3	200/3	200/3
	Max. Tool Length/Weight	inch/kgf	7.87/3	7.87/3	7.87/3	7.87/3
Power	Power Capacity	kVA	45	45	49	49
Dimension	Floor Dimension (LxWxH)	mm	2,715 / 2,150 / 2,750	3,045 / 2,150 / 2,750	3,700 / 3,815 / 3,010	3,300 / 2,545 / 2,750
		inch	106.89 / 84.65 / 108.27	119.88 / 84.65 / 108.27	145.67 / 150.20 / 118.50	129.92 / 100.19 / 108.26
Machine Weight		kgf	5,000	5,500	8,000	8,700
NC Controller		-	FANUC 0 i [MITSUBISHI M80VA]			

※ Remark
All specification is subject to change without notice to preserve product quality

[ ] : Opt.

ITEM		Unit.	Gemini DVD5200	Gemini DVD5200L	Gemini DVD5200P	Gemini DVD6500 (BBT 40/BBT 50)	
Traverse	X / Y / Z1, Z2axis	mm	1,040 / 520 / 600	1,040 / 520[+420] / 600	1,040 / 520[+420] / 600	1,300 / 670 / 635	
		inch	40.94 / 20.47 / 23.62	40.94 / 20.47(15.74) / 23.62	40.94/20.47[+16.54]/23.62	51.18 / 26.38 / 25	
	Traverse(U-axis/V-axis)	mm	±1/[±1]	±1/[±1]	±1/[±1]	±1/[±1]	
		inch	±0.039/[±0.039]	±0.039/[±0.039]	±0.039/[±0.039]	±0.039/[±0.039]	
	Distance Of Table To Spindle Nose	mm	150 ~ 750	150 ~ 750	150 ~ 750	150 ~ 785	
		inch	5.91 ~ 29.52	5.91 ~ 29.52	5.91 ~ 29.52	5.91~30.90	
	Distance between Spindles	mm	440[500]	440[500]	440	650[550]	
		inch	17.32[19.69]	17.32[19.69]	17.32	25.60[21.65]	
	Rapid Traverse (X/Y/Z axis)	m/min	40 / 40 / 40	40 / 40 / 40	40 / 40 / 40	36 / 36 / 36	36 / 36 / 30
		inch/min	1,575 / 1,575 / 1,575	1,575 / 1,575 / 1,575	1,575 / 1,575 / 1,575	1,181 / 1,181 / 944	
Table	Table Dimension	mm	1,200 x 520	1,200 × 520	950 × 520	1,500 x 670	
		inch	47.24 x 20.47	47.24 x 20.47	37.40 x 20.47	59.06 x 26.38	
	Max. Loading Weight	kg	800	800	400	1,300	
	Dimension Of T-Slots	mm	18H8 x p125 x 4ea	18H8 x p125 x 4ea	18H8 x p125 x 4ea	18H8 x p125 x 5ea	
		inch	0.71H8 x p4.92 x 4ea	0.71H8 x p4.92 x 4ea	0.71H8 x p4.92 x 4ea	0.71H8 x p4.92 x 5ea	
Main Spindle	Max. Spindle Speed	min-1	12,000	12,000	12,000	12,000	8000 [6,000]
	Max. Spindle Torque	N·m	118N·m (S3 15%)	118N·m (S3 15%)	118N·m (S3 15%)	118 (15min)	353 (5min) 442 (15min)
	Spindle Motor (Cont./30min/S3 25%)	kW	11 / 15 / 18.5	11 / 15 / 18.5	11 / 15 / 18.5	11 / 15 / 18.5	11 / 15 / 22 [15 / 18.5 / 22]
Guide Way			Roller Guide	Roller Guide	Roller Guide	Roller Guide	
ATC/MG	Type Of Tool Shank	-	BBT40	BBT40	BBT40	BBT40	BBT50
	Tool change time(T-T)	sec	1.6	1.6	1.6	1.6	3
	No. Of Tools	ea	2-30	2-30	2-30	2-30	2-24
	Max. Tool Diameter (without adjacent tools)	mm	ø80 [ø160]	ø80 [ø160]	ø80 [ø160]	ø80 [ø160]	ø110 [ø200]
		inch	ø3.15 [ø6.30]	ø3.15 [ø6.30]	ø3.15 [ø6.30]	ø3.15 [ø6.30]	ø4.33 [ø7.87]
	Max. Tool Length/Weight	mm/kg	300/8	300/8	300/8	300/8	350/15
		inch/kg	11.81/8	11.81/8	11.81/8	11.81/8	13.78/15
Power	Power Capacity	kVA	62	62	67	69	
Dimension	Floor Dimension (LxWxH)	mm	2,305 / 3,000 / 3,470	2,755 /3,000 / 3,470	3,718 / 3,762 / 3,670	3,130 / 3,445 / 3,837	
		inch	90.75 / 118.11 / 136.61	108.46 / 118.11 / 136.61	146.85 / 162.99 / 144.49	123.23 / 135.63 / 151.06	
Machine Weight		kg	8,700	9,200	13,200	12,300	
NC Controller		-	FANUC 0 i [MITSUBISHI M80VA]				

※ Remark
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[ ] : Opt.

NC SPECIFICATION

FANUC **0i Controller**

Axes Control		
Controlled axes		3(X, Y, Z1, Z2)
Simultaneously controllable axes		4 axes
Positioning	G00	○
Linear interpolation	G01	3 axes
Circular interpolation	G02, G03	2 axes
Backlash compensation		○
Emergency stop / overtravel		○
Follow up		○
Least command increment	0.001mm / 0.0001"	○
Least input increment	0.001mm / 0.0001"	○
Machine lock	All axes / Z axis	○
Mirror image		○
Position switch		○
Stored pitch error compensation		○
Pitch error offset compensation for each axis		○
Stored stroke check 1		○
Overtraval controlled by software		○
Interpolation & Feed Function		
2nd reference point return	G30	○
Circular interpolation	G02, G03	○
Cylindrical interpolation	G07.1	○
Dwell	G04	○
Exact stop mode	G09, G61 (mode)	○
Feed per minute	mm/min	○
Feedrate override(10% increments)	0-200 %	○
Helical interpolation		○
Jog override (10% increments)	0-200 %	○
Linear interpolation	G01	○
Manual handle feed (1 unit)		○
Manual handle feedrate	0.1 / 0.01 / 0.001 mm	○
Override cancle	M48 / M49	○
Positioning	G00	○
Rapid traverse override	F0 (fine feed), 25 / 50 / 100 %	○
Reference position return	G28	○
Reference position return check	G27	○
Skip function	G31	○
Spindle &M-code function		
M-code function	M 3 digits	○
Spindle orientation		○
Spindle serial output		○
Spindle speed command	S5 digits	○, 400 Pairs
Spindle speed override (10% increments)	50-120%	○
Tool function		
Cutter compensation	G40, G41, G42	○
Number of tool offsets	400 ea	○
Tool length compensation	G43, G44, G49	○
Tool life management		○
Tool number command	T2 digits	○
Tool offset memory C	Geometry / wear and length / Radius offset memory	○
Tool offset	G45-G48	○
Programming & Editing function		
Absolute / Incremental programming	G90 / G91	○
Automatic coordinate system setting		○
Background editing		○
Canned cycle	G73, G74, G76, G80-G89, G99	○
Circular interpolation by radius programming		○
Custom macro		○
Dcimal point input		○
I/O interface	RS-232C / LAN PORT	○
Extemded part program editing		○
Label skip		○

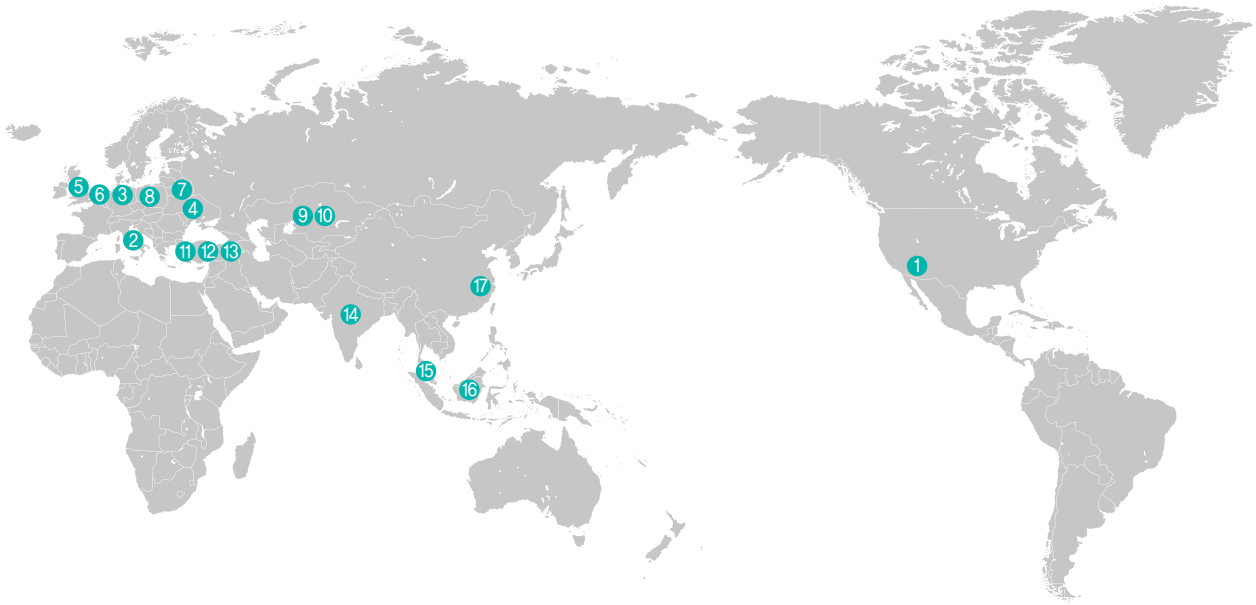
Programming & Editing function		
Local / Machine coordinate system	G52 / G53	○
Maximum commandable value	± 99999.999mm/(± 9999.9999 inch)	○
No. of registered programs	400ea	○
Optional block skip		○
Optional stop	M01	○
Program file name	32 characters	○
Playback		○
program number	04-digits	○
Program protect		○
Program stop / end	M00 / M02, M30	○
Rigid tapping	G84, G74	○
Sub program	Up to 4 nesting	○
Tape code	ISO / EIA Automatic discrimination	○
Thread cutting		○
Work coordinate system	G54-G59	○
Others functions (Operation, setting & display, etc)		
3rd / 4th reference return		○
Additional work coordinate system	G54.1 P1-48 (48 pairs)	○
AI APC(Advanced Preview Control)	20 block preview	○
Alarm display		○
Alarm history display		○
Automatic corner override	G62	○
Clock function		○
Coordinate system rotation	G68, G69	○
Cycle start / Feed hold		○
Display of PMC alarm message	Message display when PMC alarm occurred	○
Dry run		○
Embedded Ethernet		○
Graphic display	Tool path drawing	○
Help function		○
High speed skip function		○
Loadmeter display		○
Manual handle interruption		○
MDI / DISPLAY unit	10.4" Color LCD, keyboard for data input (small), soft-keys	○
Memory card interface		○
USB interface		○
Operation functions	Tape / Memory / MDI / Manual	○
Operation history display		○
Optional angle chamfering / corner R		○
Polar coordinate command	G15 / G16	○
Program restart		○
Programmable data input	Tool offset and work offset are entered by G10, G11	○
Programmable mirror image	G50.1 / G51.1	○
Run hour and part number display		○
Scaling	G50, G51	○
Search function	Sequence NO. / Program NO.	○
Self-diagnostic function		○
Servo setting screen		○
Single block		○
Single direction positioning	G60	○
Stored stroke check 2,3		○
Optional specifications		
Additional controlled axes	5 axes in total	OPT.
AI contour control I	40 block	OPT.
AI contour control II	200books	OPT.
Dynamic graphic display (w/ 10.4" color LCD)	Machining profile drawing	OPT.
Fast data server	Need option board	OPT.
Fast ethernet	Need option board	OPT.
Manual guide i	400 ea	OPT.

MITSUBISHI **M80VA Controller**

Machining center system	
NC axes + Spindles + PLC axes	4(X,Y,Z1,Z2)
In total for all part systems	4 Axis
Max. number of NC axes in a part system	8
Max. number of part systems (main+sub)	○2
Max. number of main part systems	○2
Max. number of sub part systems	-
Control unit-side High-speed program server mode	-
Display unit-side High-speed program server mode	○
Front-side SD card mode	○
Least command increment	○ 0.1m
Least control increment	○1m
Max. number of tool offset sets	○400 sets
Built-in PLC capacity	○64000
Multi-project [number of projects stored]	○3
Touch gesture operation(*2)	○
Data protection by user's level	○
Workpiece coordinate system shift	-
3D solid program check	○
Interactive cycle insertion	-
Multiple spindle synchronization set control	-
Spindle superimposition control	-
High-accuracy control(G61.1/G08)	○
High-speed high-accuracy control (G5P10000) maximum [kBPM]	○67.5
High-speed high-accuracy control (G05P20000) maximum [kBPM]	○135
SSS control	○
Tolerance control	○
Variable-acceleration pre-interpolation acceleration/deceleration	-
OMR-FF	○
Rapid traverse block overlap	○
Spindle-mode servo motor control	○
Real-time tuning 1 (speed gain)	○
Real-time tuning 2 (rapid traverse time constant)	○
Tool center point control	○(*4)
Inclined surface machining command	○
3-dimensional manual feed	○
Finish shape view programming	○
CC-Link (Master/Local)	□
PROFIBUS-DP (Master)	○
MES interface library	○
EcoMonitorLight connection	○
Machine group-based alarm stop	□
Smart safety observation	□

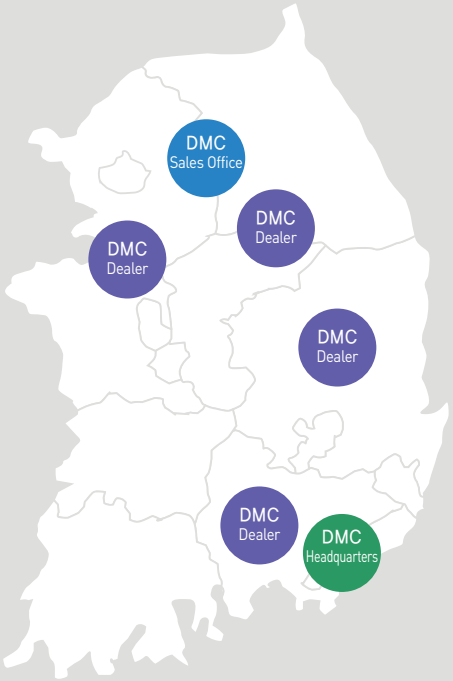
○Standard △Optional □Selection (Additional unit)

Global Network



① USA	⑦ Belarus	⑬ Turkey 3
② Italy	⑧ Poland	⑭ India
③ Germany	⑨ Kazahstan 1	⑮ Malaysia
④ Ukraine	⑩ Kazahstan 2	⑯ Indonesia
⑤ UK	⑪ Turkey 1	⑰ China
⑥ Netherlands	⑫ Turkey 2	

• Domestic Dealer and Service Center



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2022-05-001.En