



Doosan Machine Tools

2-SPINDLE VERTICAL MACHINING CENTER FOR
HIGH PRODUCTIVITY

DMP

500-2SP • 570/50-2SP



Basic Information

Basic Structure

Detailed Information

Options
Applications
Diagrams
Specifications

Customer Support Service



DMP-2SP series

Designed as a highly stable, rigid structure, the DMP-2SP is suitable for mass production in small variety items. In addition, W-axis for DMP 500-2SP, Z2 axis for DMP 570/50-2SP been adopted as a standard feature to adjust tool length both spindle easily.

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Convenient W axis structure

W-axis for DMP 500-2SP, Z2 axis for DMP 570/50-2SP can reduce tool setting time easily.

Reduced investment and maintenance costs

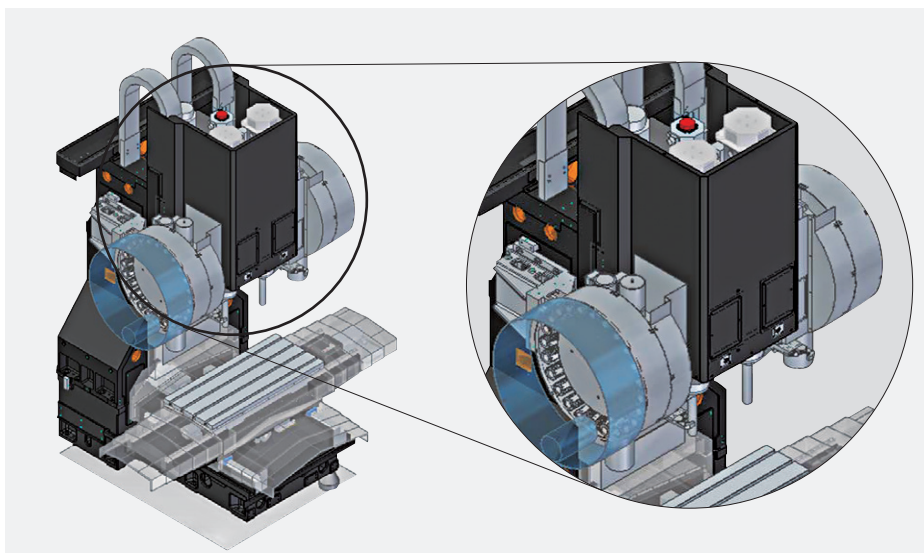
The customer can reduce the base machine cost compared to two conventional VMC's. Additionally, for ancillary items such as spindle probe, mist collector etc, only one is required, thereby reducing the total investment cost.

High productivity and small footprint

The DMP-2SP production rate is faster than conventional VMC's, and also floorspace is greatly reduced.

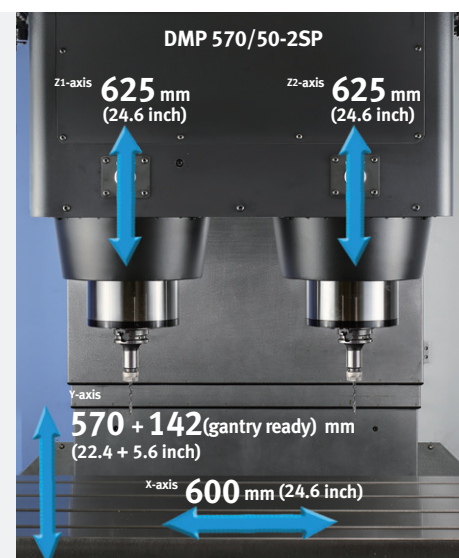
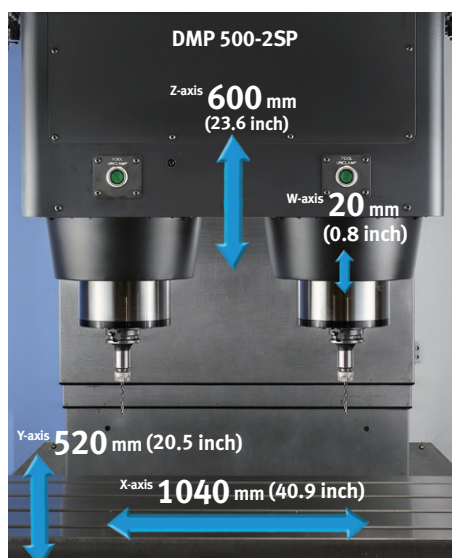
Basic structure

Designed as a stable, highly rigid structure, the DMP-2SP series is suitable for mass production of small variety parts.



Axis system

Roller-type linear guideways have been adopted to provide both high rigidity and rapid axis travel. All linear axes use grease lubrication to reduce running cost and enhance the operator environment.



Table

Optimized table size and load capacity to allow fixing of various fixtures, rotary tables etc.

Table loading capacity

DMP 500-2SP

800 kg (1763.7 lb)

DMP 570/50-2SP

1100 kg (2425.0 lb)

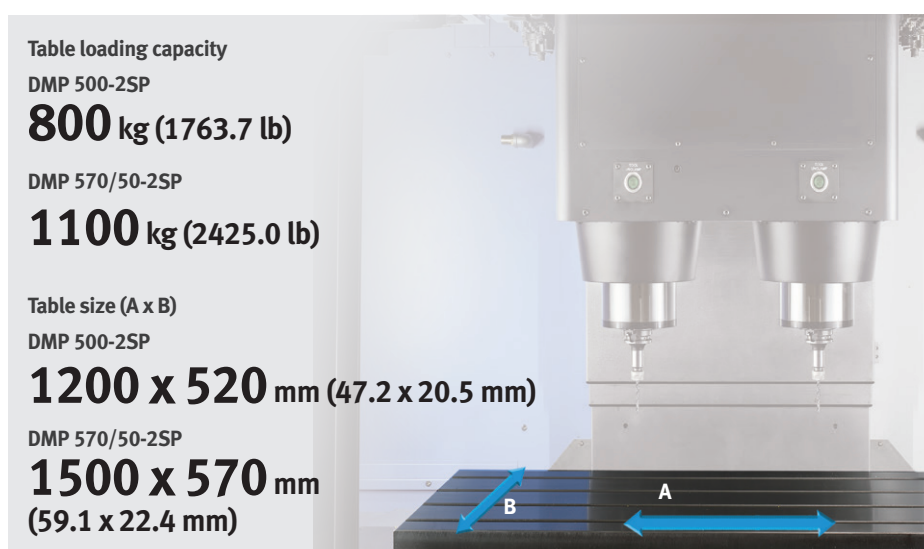
Table size (A x B)

DMP 500-2SP

1200 x 520 mm (47.2 x 20.5 mm)

DMP 570/50-2SP

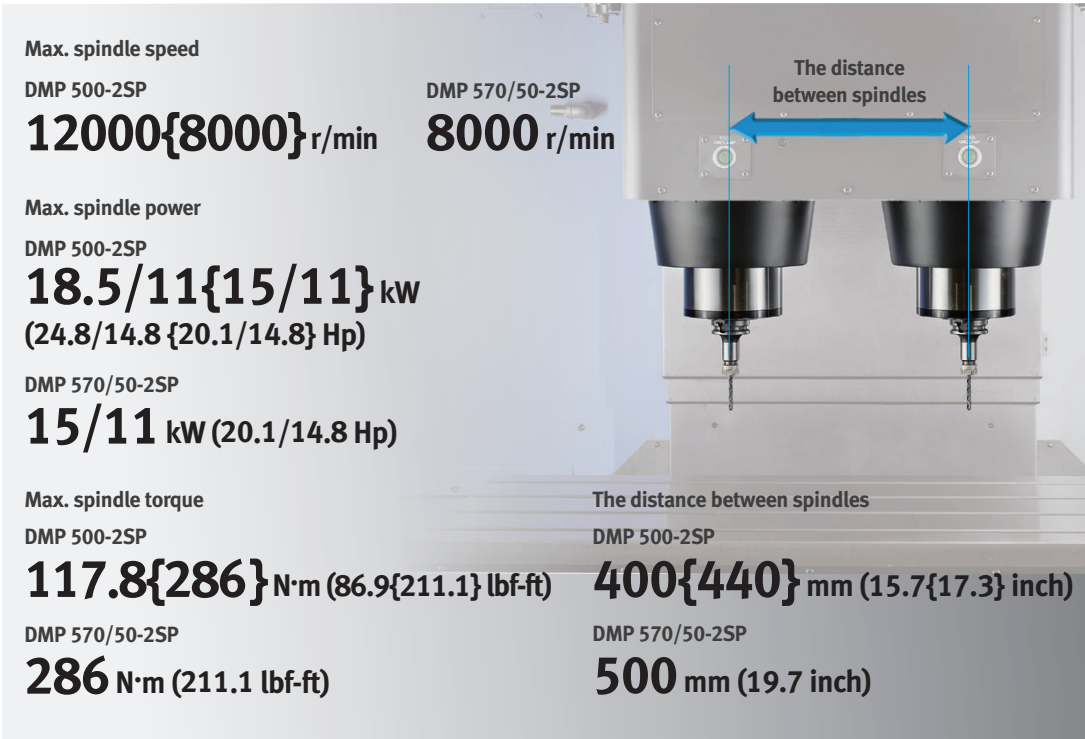
1500 x 570 mm
(59.1 x 22.4 mm)



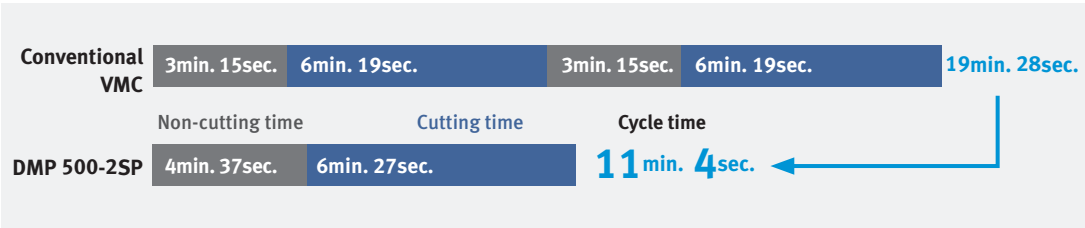


Spindle

Direct-coupled type spindles have been adopted as a standard feature to further reduce vibration and noise while enhancing productivity, work environment and machining accuracy.



Productivity

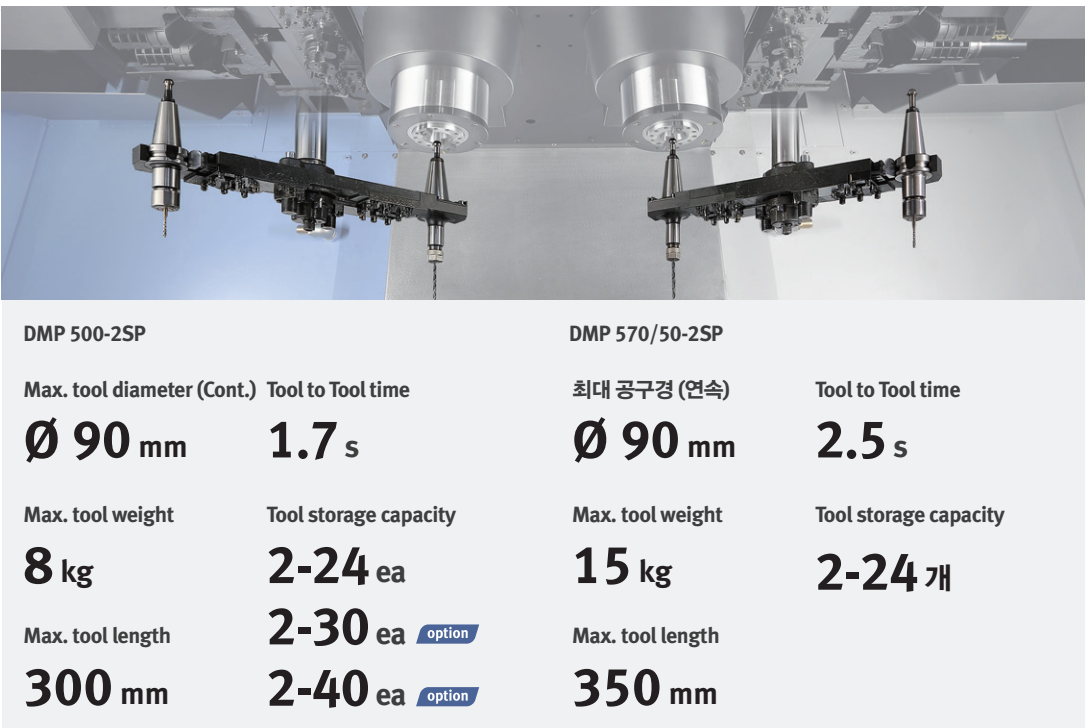


* The Chip-to-Chip time has been tested in accordance with Doosan's strict testing conditions, but may vary depending on the user's operating conditions.



Tool change system

To optimize productivity, 2 separate tool change systems are adopted as a standard feature for simultaneous tool change. The highly reliable tool magazines can accommodate up to 40 tools each.





Standard / Optional Specifications

Various optional features are available for customer-specific applications.

● Standard ○ Optional X N/A

No.	Description	Features		DMP 500-2SP	DMP 570/50-2SP
1	Spindle	12000 r/min	18.5/11 kW (24.8/14.8 Hp), 117.8 N·m (86.9 lbf·ft)	●	○
2		8000 r/min	15/11kW (20.1/14.8 Hp), 286 N·m (211.1 lbf·ft)	○	●
3		The distance between spindles	400 mm (15.7 inch)	●	X
4			440 mm (17.3 inch)	○	X
5			500 mm (19.7 inch)	X	X
6	Oil cooler	12000 r/min		●	X
7		8000 r/min		●	●
8	Magazine	Tool storage capacity	2-24 ea	●	●
9			2-30 ea	○	X
10			2-40 ea	○	X
11	Tool shank type	ISO #40	BIG PLUS BT40	●	●
12			BIG PLUS CAT40 / DIN40	○	○
13		ISO #50	BIG PLUS BT50	X	●
14			BIG PLUS CAT50 / DIN50	X	●
15	Raised Column	150 mm (5.9 inch)		○	○
16		250 mm (9.8 inch)		○	○
17	Coolant	FLOOD	0.45 MPa (1.1 kW)	●	●
18		TSC	None	●	●
19			2 MPa (1.5kW)	○	○
20			2 MPa (4.0 kW)	○	○
21			7 MPa (5.5 kW)	○	○
22		SHOWER	0.1 MPa (1.1 kW)	○	○
23	Chip disposal	Chip pan		●	●
24		Chip conveyor	Hinged type (Left / Right / Rear)	○	○
25			Magnetic scraper type (Left / Right / Rear)	○	○
26		Chip bucket (300L)		○	○
27		Air blower		○	○
28		Air gun		○	○
29		Coolant gun		○	○
30		Mist collector		○	○
31	Precision machining option	Spindle thermal compensation		●	●
32		Linear scale		○	○
33		AICC I (40 block)		○	○
34		AICC II (200 block)		●	●
35	Measurement & Automation	Automatic tool measurement	TS27R	○	○
36			OTS	○	○
37		Automatic tool breakage detection		○	○
38		Automatic workpiece measurement	OMP60	○	○
39		Automatic front door with safety device		○	○
40	Others	LED Work light		●	●
41		3 color signal tower		●	●
42		4th axis auxiliary device interface		○	○
43		Tool load monitoring		○	○
44		EZ Guide i		●	●
45		Automatic power off		○	○
46	Customized special option	Coolant level switch : Sensing level - Low / High		○	○
47		EZ Guide i (Conversational Programming Solution)		●*1)	●*1)
48		iHMI with Machining Cycle		○*1)	○*1)
49		Tool load monitoring function (DOOSAN)		○	○
50		Adaptive feed control (DOOSAN)		○	○
51		EZ Operation package		X	X

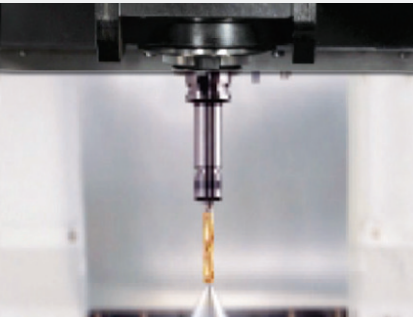
* Please contact Doosan to select detail specifications. * Special Quotation.

Note *1) Only with 15" LCD standard Note *2) Only with 15" Touch LCD standard

Peripheral equipments

TSC option 19~21

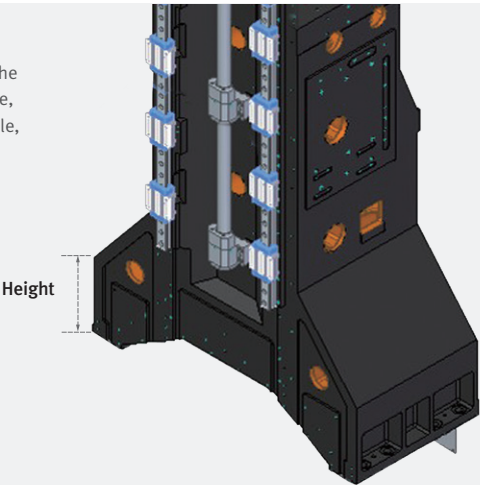
The through-spindle coolant (TSC) system delivers higher machining efficiency



Raised column option 15~16

When the distance between the table top and the spindle nose needs to be extended, for example, accommodate a fixture or rotary axis on the table, solid one-piece raised column can be used to extend the distance.

Height
150mm (5.9 inch)
250mm (9.8 inch)

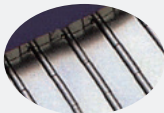


Oil Cooler

An oil cooler correlated to room temperature can be equipped for a long-term operation at high speed. Cooling oil circulates around the spindle bearings to prevent thermal error of the spindle and maintain machining accuracy



Chip conveyor option 24~25



Hinged belt



Magnetic scraper

Chip conveyor type	Material	Description
Hinged belt	Steel	Hinged belt chip conveyor, which is most commonly used for steel work [for cleaning chips longer than 30mm (1.2inch)], is available as an option.
Magnetic scraper	Cast Iron	Magnetic scraper type chip conveyor, which is ideal for die-casting work [for cleaning small chips], is available as an option.

4th axis auxiliary device interface option 42

Users who wish to set up a rotary axis on the table to increase application flexibility are encouraged to contact Doosan in advance.



Pneumatic

Hydraulic

Electronic

Servo driven function and device

Hydraulic / Pneumatic fixture line option

The user can prepare pipelines for hydraulic/pneumatic fixtures whose detailed specifications should be determined by discussion with Doosan.



Pneumatic

Hydraulic

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Service

DOOSAN Fanuc i Plus

DOOSAN Fanuc i Plus is optimized for maximizing customer productivity and convenience.

15 inch screen + New OP

DOOSAN Fanuc i Plus' operation panel enhances operating convenience by incorporating common-design buttons and layout, and features the Qwerty keyboard for fast and easy operation.



DOOSAN Fanuc i Plus

- 15 inch color display
- Intuitive and user-friendly design

USB & PCMCIA card QWERTY keyboard

- EZ-guide i standard
- Ergonomic operator panel
- 2MB Memory
- Hot key



iHMI Touch screen option

- iHMI provides an intuitive interface that utilizes a touch screen for quick and easy operation

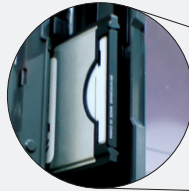
Variety of applications

- Providing various applications related to PLANNING, MACHINING, IMPROVEMENT, and UTILITY for customer convenience.

MPG handle



PCMCIA Card & USB Port



PCMCIA Card

The PCMCIA card enables uploading and downloading of the NC program, NC parameters, tool information, and ladder programs, and also supports DNC operation.



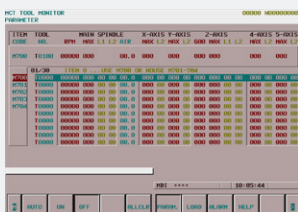
USB Port

The USB memory stick enables uploading and downloading of the NC program, NC parameters, tool information and ladder programs. (DNC operation is not supported.)



Operation / Maintenance

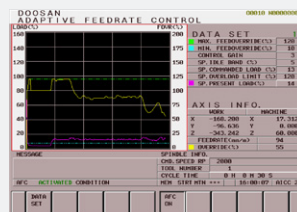
The software developed by Doosan's own technology provides numerous functions designed for convenient operation.



Tool Load Monitoring

option

During cutting operation, abnormal load caused by wear and tear of the tool is detected and an alarm is triggered to prevent further damage.

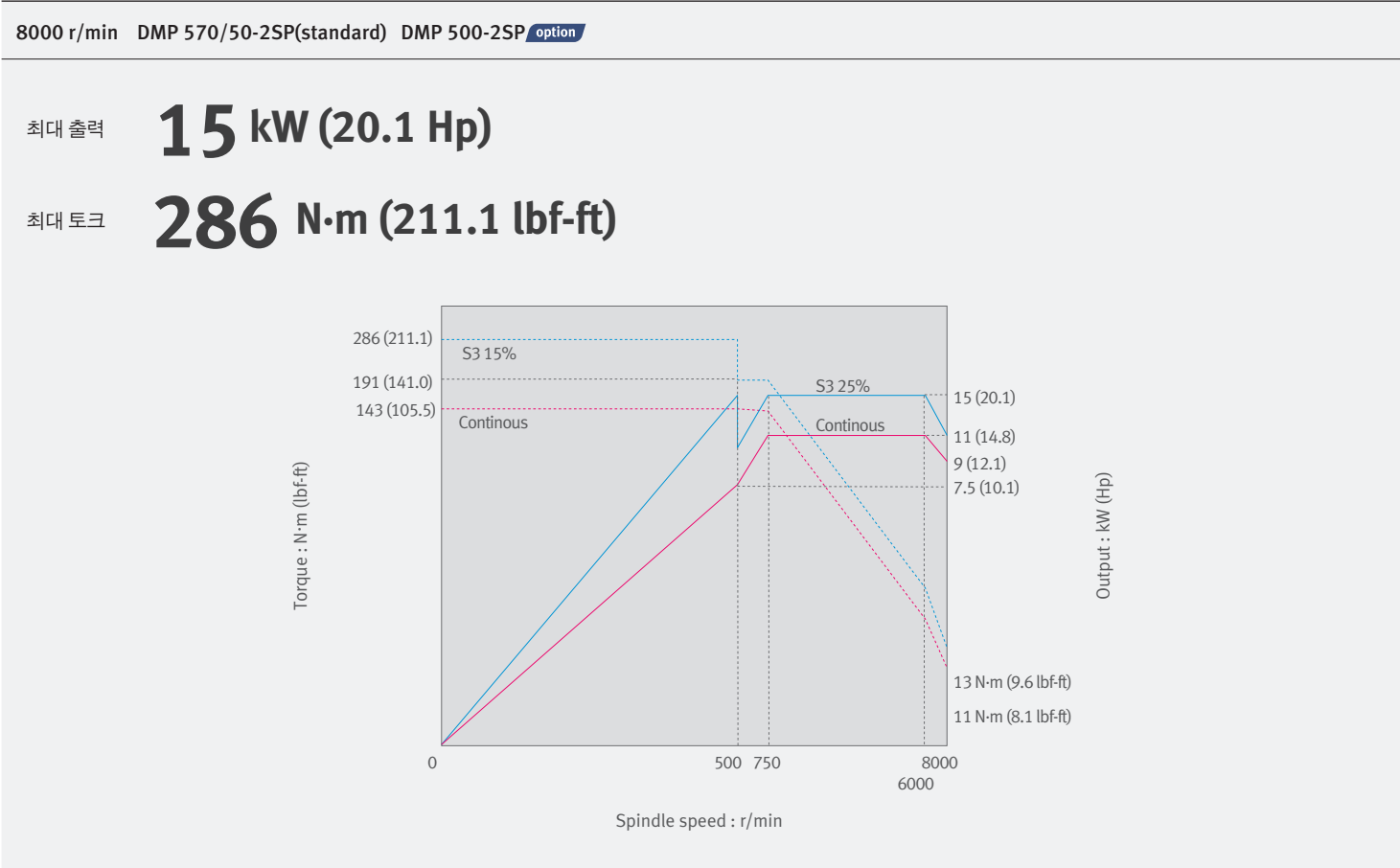
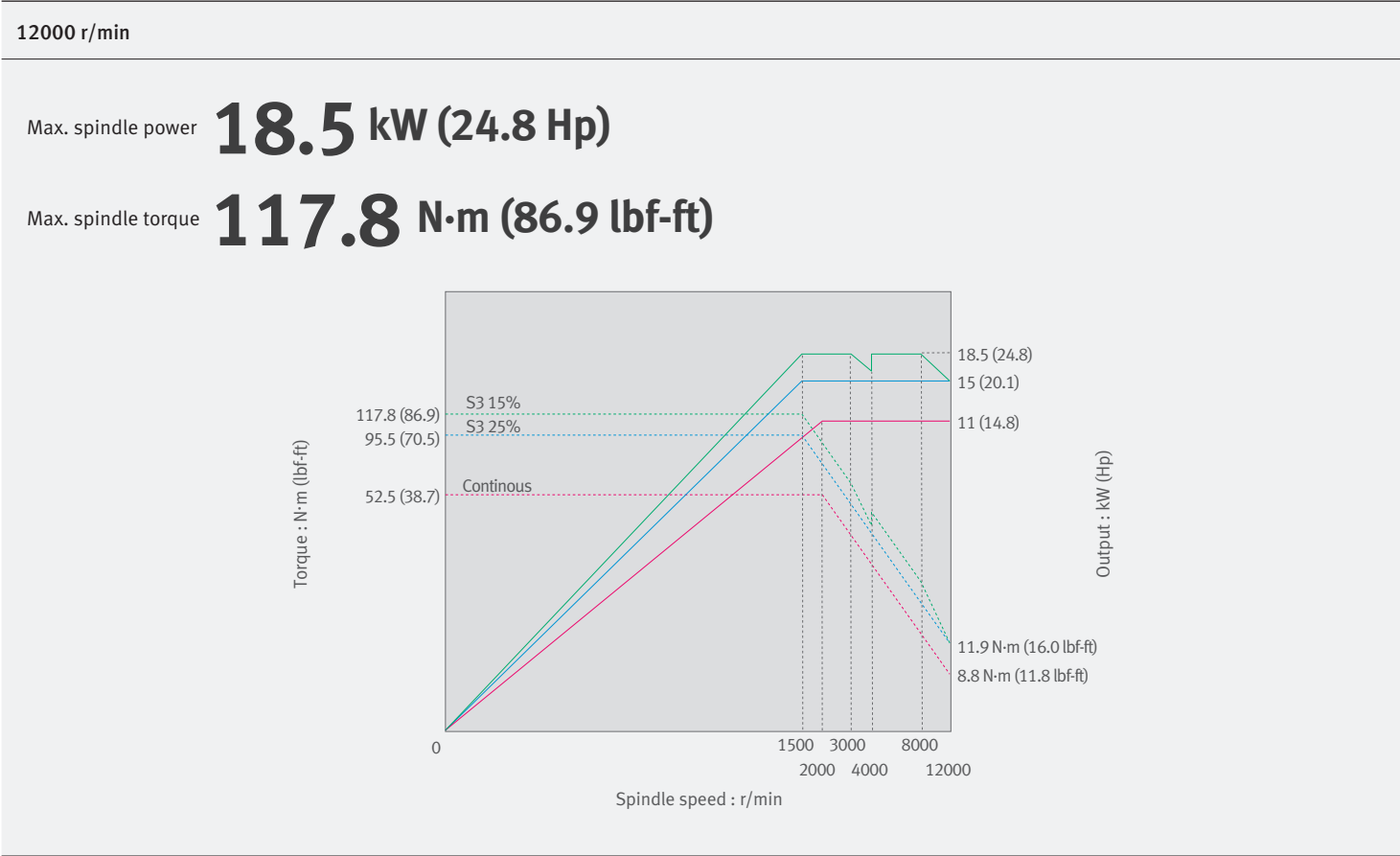


Adaptive Feed Control(AFC)

option

If tool overload is detected during operation, the feed rate is controlled to prevent the tool from being damaged.

Spindle Power – Torque Diagram / Table

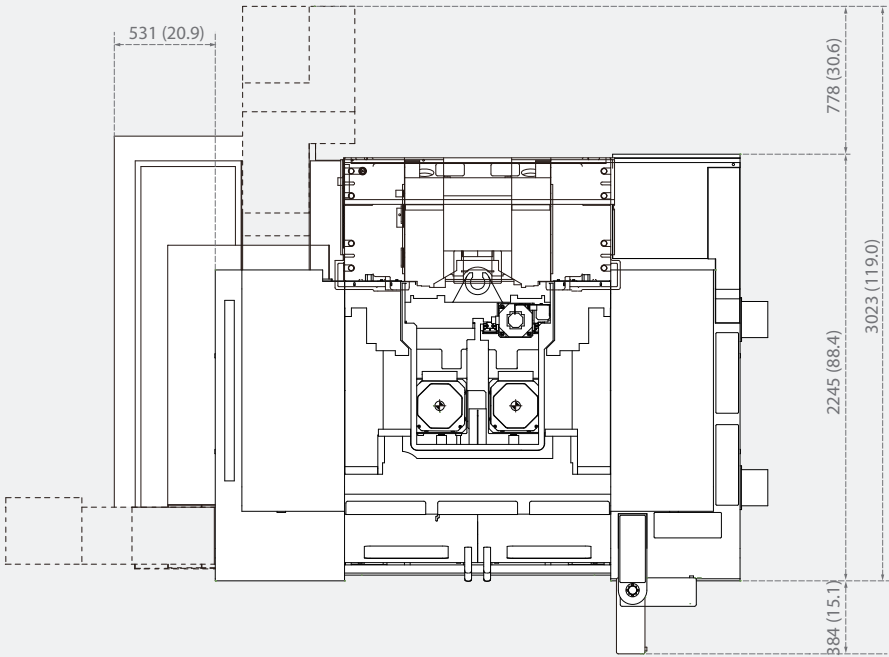


External Dimensions

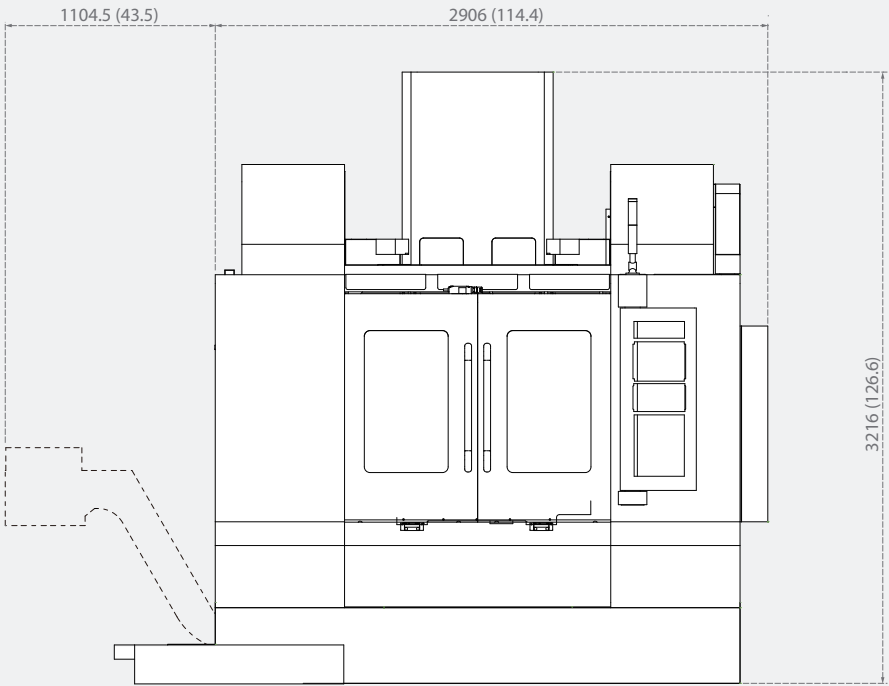
DMP 500-2SP

Unit : mm (inch)

Top View



Front View



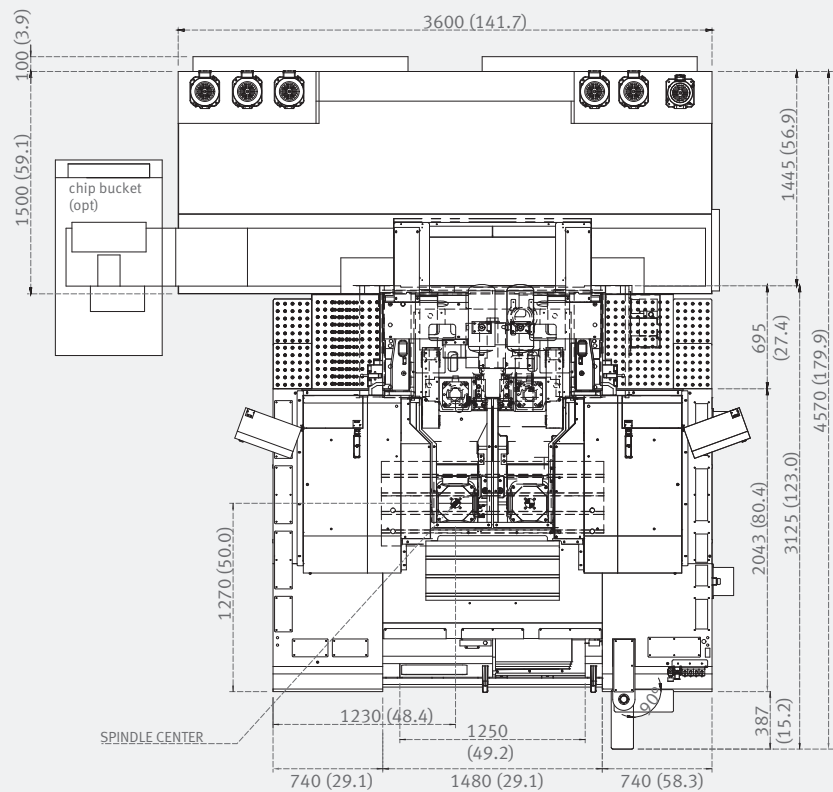
* Some peripheral equipment can be placed in other places

External Dimensions

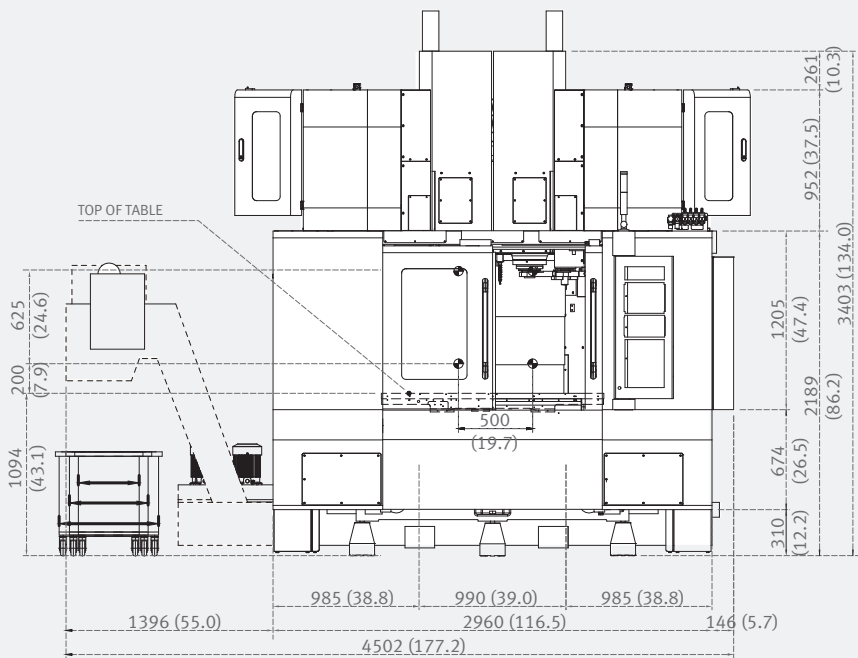
DMP 570/50-2SP

Unit : mm (inch)

Top View



Front View

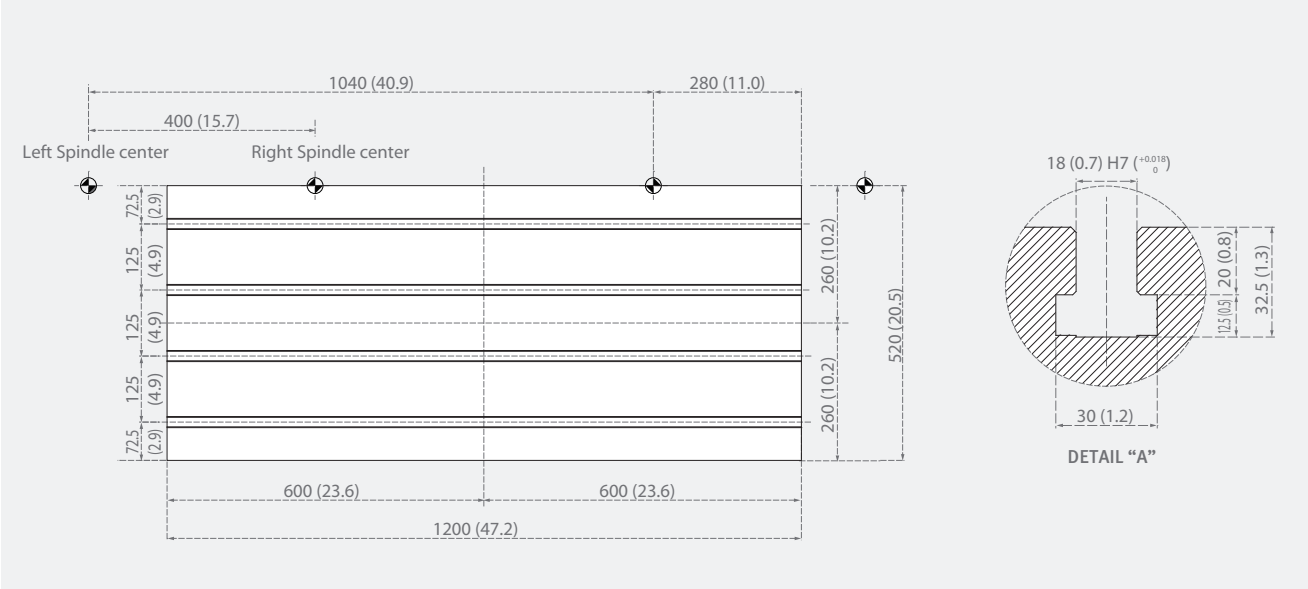


* Some peripheral equipment can be placed in other places

Table

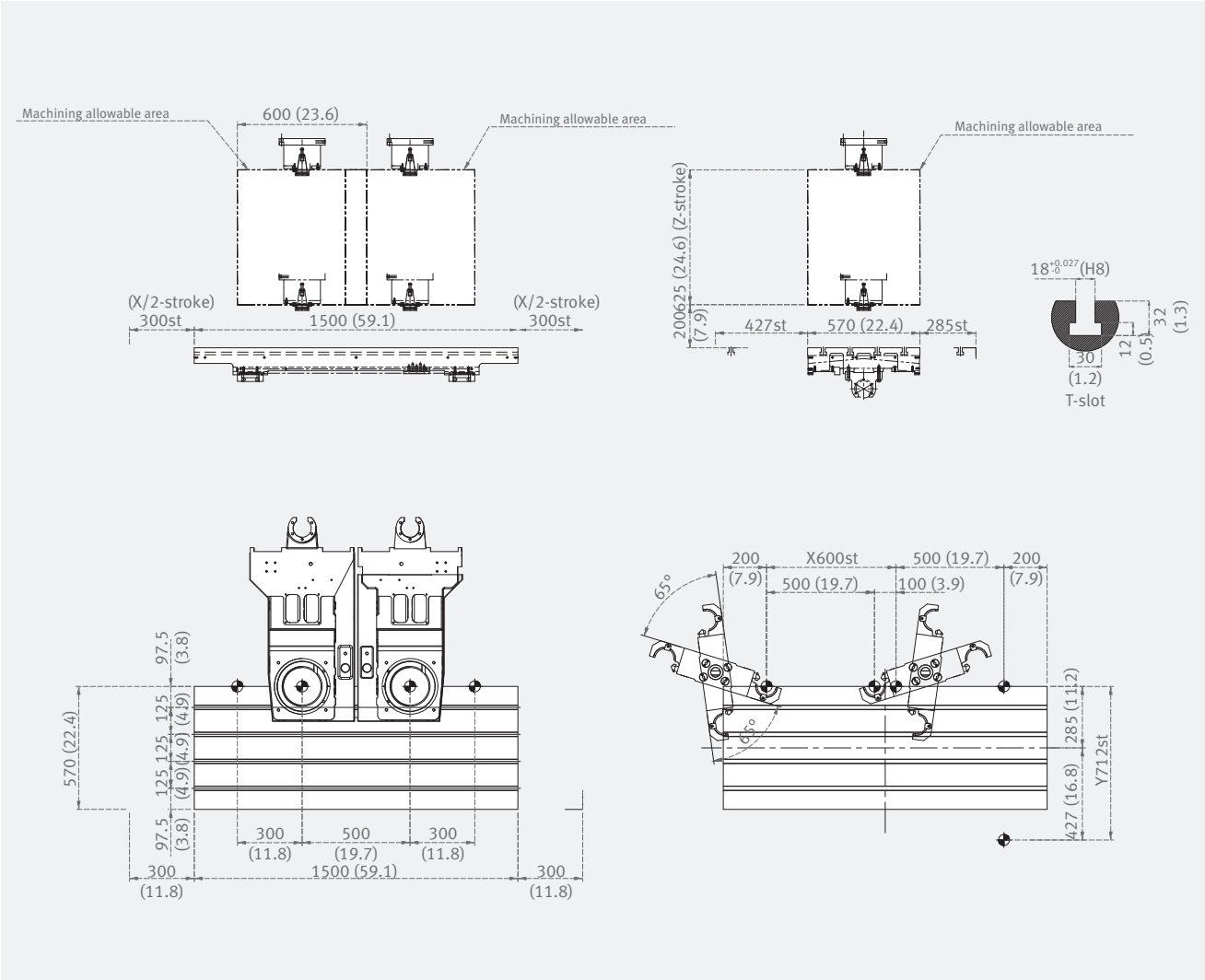
DMP 500-2SP

Unit : mm (inch)



DMP 570/50-2SP

Unit : mm (inch)



* Some peripheral equipment can be placed in other places

Machine Specifications



Description			Unit	DMP 500-2SP	DMP 570/50-2SP
Travels	Travel distance	X axis	mm (inch)	1040 (40.9)	600 (23.6)
		Y axis	mm (inch)	520 (20.5)	570 + 142(gantry ready) (22.4 + 5.6)
		Z axis	mm (inch)	600 (23.6)	Z1: 625 (24.6) Z2: 625 (24.6)
		W axis	mm (inch)	20 (0.8)	-
	Distance from spindle nose to table top		mm (inch)	150 ~ 750 (5.9 ~ 29.5)	200 ~ 825 (7.9 ~ 32.5)
	Distance between spindles		mm (inch)	400 (15.7)	500 (19.7)
Table	Table size		mm (inch)	1200 x 520 (47.2 x 20.5)	1500 x 570 (59.1 x 22.4)
	Table loading capacity		kg (lb)	800 (1763.7)	1100 (2425.0)
	Table type		mm (inch)	T-SLOT (4-125 (4.9) x 18 (0.7) H7)	T-SLOT (4-125 (4.9) x 18 (0.7) H8)
Spindle	Max. spindle speed		r/min	12000 {8000}*	8000
	Taper		-	ISO #40	ISO #50
	Max. Spindle power (S3 15%/Cont.)		kW (Hp)	18.5/11 {15/11}* {24.8/14.8 {20.1/14.8}}	15/11 (20.1/14.8)
	Max. spindle torque (S3 15%)		N·m (lbf·ft)	117.8 {286}* {86.9 {211.1}}	286 (211.1)
Feedrate	Rapid traverse rate	X axis	m/min (ipm)	40 (1574.8)	40 (1574.8)
		Y axis	m/min (ipm)	40 (1574.8)	40 (1574.8)
		Z axis	m/min (ipm)	36 (1417.3)	36 (1417.3)
Automatic Tool Changer	Type of tool shank	Tool shank	-	BT 40 {CAT40/DIN40}*	BT 50 {CAT50/DIN50}*
		Pull stud	-	PS806	P50T-1 45deg
	Tool storage capa.		ea	2-24 {2-30, 2-40}*	2-24
	Max. tool diameter	Continous	mm (inch)	90 {80, 75}* {3.5 {3.1, 3.0}}	125 (4.9)
		Without Adjacent Tools	mm (inch)	150 (5.9)	220 (8.7)
	Max. tool length		mm (inch)	300 (11.8)	350 (13.8)
	Max. tool weight		kg (lb)	8 (17.6)	15 (33.1)
	Tool selection			MEMORY RANDOM	MEMORY RANDOM
	Tool change time (Tool-to-tool)		sec	1.7	2.5
	Tool change time (Chip-to-chip)		sec	3.5	5.5
Power source	Electric power supply(rated capacity)		kVA	60.0	60.0
	Compressed air supply		Mpa	0.54	0.54
Tank capacity	Coolant tank capacity		L (gal)	300 (79.3)	300 (79.3)
Machine Dimensions	Height		mm (inch)	3510 (138.2)	3680 (144.9)
	Length		mm (inch)	2400 (94.5)	2400 (94.5)
	Width		mm (inch)	2760 (108.7)	3200 (126.0)
	Weight		kg (lb)	8500 (18739.0)	13000 (28659.7)
Control	CNC system		-	Doosan Fanuc i Plus	Doosan Fanuc i Plus

* { } : option

CNC Unit Specifications

● Standard ○ Optional X N/A

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Customer Support Service

FANUC

No.	Items	Spec.	Doosan Fanuc i Plus
1	Controlled axis	Controlled axes	3 (X, Y, Z)
2		Least command increment	0.001 mm / 0.0001"
3		Least input increment	0.001 mm / 0.0001"
4	Interpolation & Feed Function	2nd reference point return	G30
5		3rd / 4th reference return	
6		Inverse time feed	
7		Cylindrical interpolation	G07.1
8		Automatic corner override	G62
9		Manual handle feed	1 unit
10		Manual handle feed rate	x1, x10, x100 (per pulse)
11		Handle interruption	○
12		AICC II	200 BLOCK
13		Fine Surface Machining	Look-ahead block no. is Max Ø200 - AI contour control II+ - Smooth tolerance control+ - Jerk control
14	Spindle & M code Function	M- code function	
15		Retraction for rigid tapping	
16		Rigid tapping	G84, G74
17	Tool Function	Number of tool offsets	400 ea
18		Tool nose radius compensation	G40, G41, G42
19		Tool length compensation	G43, G44, G49
20		Tool life management	
21		Addition of tool pairs for tool life management	
22		Tool offset	G45 - G48
23	Programming & Editing Function	Custom macro	
24		Macro executor	
25		Extended part program editing	
26		Part program storage	512KB (1280m)
27		Part program storage	2MB (5120m)
28		Inch/metric conversion	G20 / G21
29		Number of Registered programs	1000ea
30		Optional block skip	9 BLOCK
31		Optional stop	M01
32		Program number	O4-digits
33		Playback function	
34	OTHER FUNCTIONS (Operation, setting & Display, etc)	Addition of workpiece coordinate system	G54.1 P1 - 48 (48 pairs)
35		Embeded Ethernet	
36		Graphic display	Tool path drawing
37		Loadmeter display	
38		Memory card interface	
39		USB memory interface	Only Data Read & Write
40		Operation history display	
41		DNC operation with memory card	
42		Optional angle chamfering / corner R	
43		Run hour and part number display	
44		High speed skip function	○
45		Polar coordinate command	G15 / G16
46		Programmable mirror image	G50.1 / G51.1
47		Scaling	G50, G51
48		Single direction positioning	G60
49		Pattern data input	
50		Machine alarm diagnosis	
51		CNC screen display	
52		CNC screen dual display function	
53		One touch macro call	○
54		Machining condition selection function	10 LEVELS
55		Machining quality level adjustment	3 LEVELS
56		EZ Guide i (Conversational Programming Solution)	
57		iHMI with Machining Cycle	
58		Tool load monitoring function (DOOSAN)	
59		Adaptive feed control (DOOSAN)	
60		EZ Operation package	

*1) If This funtion is selected, Step of Machining condition selection function is changed from 10 levels to 3 levels.

*2) Only with 15" LCD standard *3) Only with 15" Touch LCD standard

Responding to Customers

Anytime, Anywhere

Doosan Machine Tools' Global Network, Responding to Customer's Needs nearby, Anytime, Anywhere

Doosan machine tools provides a system-based professional support service before and after the machine tool sale by responding quickly and efficiently to customers' demands. By supplying spare parts, product training, field service and technical support, we can provide top class support to our customers around the world.



Customer Support Service

We help customers to achieve success by providing a variety of professional services from pre-sales consultancy to post-sales support.



Supplying Parts

- Supplying a wide range of original Doosan spare parts
- Parts repair service



Field Services

- On site service
- Machine installation and testing
- Scheduled preventive maintenance
- Machine repair



Technical Support

- Supports machining methods and technology
- Responds to technical queries
- Provides technical consultancy



Training

- Programming / machine setup and operation
- Electrical and mechanical maintenance
- Applications engineering



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*The specifications and information above-mentioned may be changed without prior notice.

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**Fire Safety
Precautions**

There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting use coolants and modifying the machine without the consent of the manufacturer. Please check the SAFETY GUIDANCE carefully before using the machine.