

DOOSAN



DMP 500/2SP

2-Spindle Vertical Machining Center for High Productivity



**MACHINE
GREATNESS™**

Basic Information

Basic Structure

Detailed Information

Options
Applications
Diagrams
Specifications

Customer Support Service



DMP 500/2SP

Designed as a highly stable, rigid structure, the DMP 500/2SP is suitable for mass production in small variety items. In addition, W-axis has been adopted as a standard feature to adjust tool length both spindle easily. In addition, a W axis has been adopted on one spindle as a standard feature to enable easy tool length offset adjustment for both spindles.



Contents

02 Product Overview

Basic Information

04 Basic Structure

Detailed Information

06 Standard / Optional Specifications

08 Applications

10 Diagrams

12 Machine / CNC Specifications

14 Customer Support Service

Convenient W axis structure

To reduce tool setting time, a W axis has been adopted on one spindle as a standard feature.

Reduced investment and maintenance costs

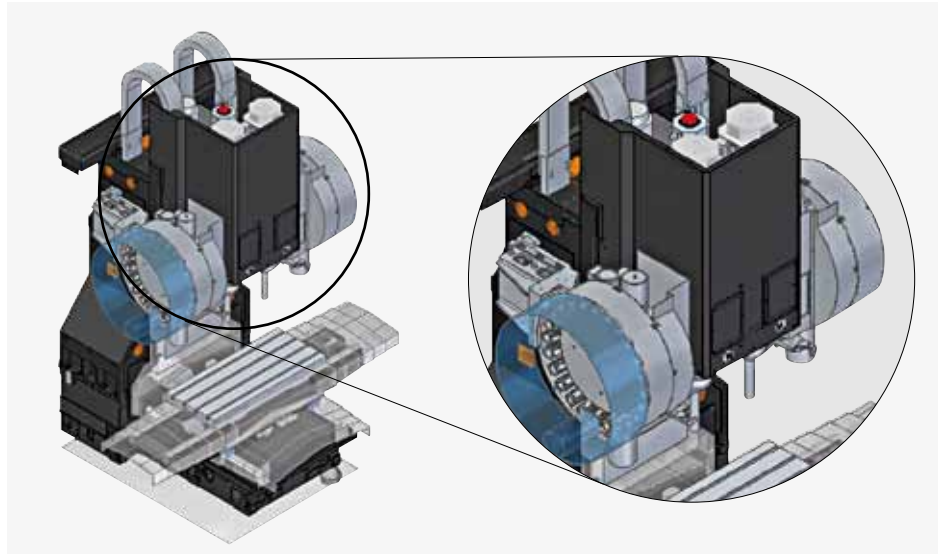
The customer can reduce the base machine cost compared to two conventional VMC's. Additionally, for ancillary items such as spindle probe, mist collector etc, only one is required, thereby reducing the total investment cost.

High productivity and small footprint

The DMP500/2SP production rate is faster than conventional VMC's, and also floorspace is greatly reduced.

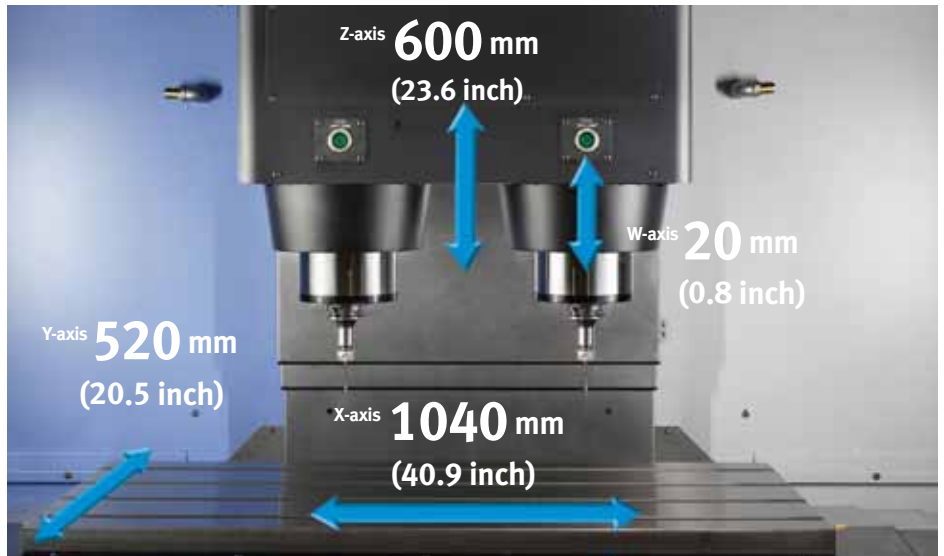
Basic structure

Designed as a stable, highly rigid structure, the DMP500/2SP is suitable for mass production of small variety parts. In addition, a W axis has been adopted as a standard feature on one spindle to enable easy tool length offset adjustment for both spindles.



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.



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.

Max. spindle speed
12000 r/min, 8000 r/min option

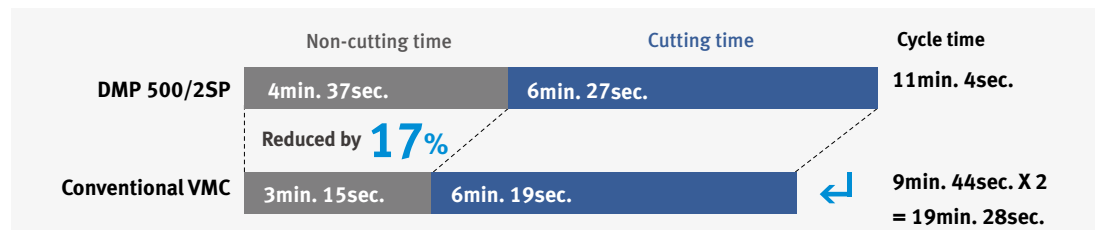
Max. spindle power
18.5/11 kW, 15/11kW option
 (24.8 / 14.8 Hp) (20.1 / 14.8 Hp)

Max. spindle torque
117.8 N·m, 286 N·m option
 (86.9 lbf-ft) (211.1 lbf-ft)

The distance between spindles
400 mm, 440 mm option
 (15.7 inch) (17.3 inch)



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.



Max. tool diameter (Cont.)

Ø 90 mm
 (Ø 3.5 inch)

Max. tool weight

8 kg
 (17.6 lb)

Max. tool length

300 mm
 (11.8 inch)

Tool to Tool time

1.7 s

Tool storage capacity

2-24 ea
2-30 ea option
2-40 ea option



Basic Information

Basic Structure

Detailed Information

Options

Applications

Diagrams

Specifications

Customer Support Service

Various optional features are available for customer-specific applications.

No.	Description	Features		DMP 500/2SP	
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)	●	
4			440 mm (17.3 inch)	○	
5	Oil cooler	12000 r/min		●	
6		8000 r/min		●	
7	Magazine	Tool storage capacity	2-24 ea	●	
8			2-30 ea	○	
9			2-40 ea	○	
10	Tool shank type	ISO #40	BIG PLUS BT40	●	
11			BIG PLUS CAT40	○	
12			BIG PLUS DIN40	○	
13	Raised Column	150 mm (5.9 inch)		○	
14		250 mm (9.8 inch)		○	
15	Coolant	FLOOD	0.45 MPa (1.1 kW)	●	
16		TSC	None	●	
17			2 MPa (1.5kW)	○	
18			2 MPa (4.0 kW)	○	
19			7 MPa (5.5 kW)	○	
20		SHOWER	0.1 MPa (1.1 kW)	○	
21	Coolant level switch : Sensing level - Low / High **		○		
22	Chip disposal	Chip pan		●	
23		Chip conveyor	Hinged type (Left / Right / Rear)		○
24			Magnetic scraper type (Left / Right / Rear)		○
25		Chip bucket (300L)		○	
26		Air blower		○	
27		Air gun		○	
28		Coolant gun		○	
29		Mist collector		○	
30	Spindle thermal compensation		●		
31	Precision machining option	Linear scale		○	
32		AICC I (40 block)		○	
33		AICC II (200 block)		●	
34	Automatic tool measurement	TS27R	○		
35		OTS	○		
36	Measurement & Automation	Automatic tool breakage detection		○	
37		Automatic workpiece measurement	OMP60	○	
38		Automatic front door with safety device		○	
39	Others	LED Work light		●	
40		3 color signal tower		●	
41		4th axis auxiliary device interface		○	
42		Tool load monitoring		○	
43		EZ Guide i		●	
44		Automatic power off		○	

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

Peripheral equipments

TSC option 16~19

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



Raised column option 13~14

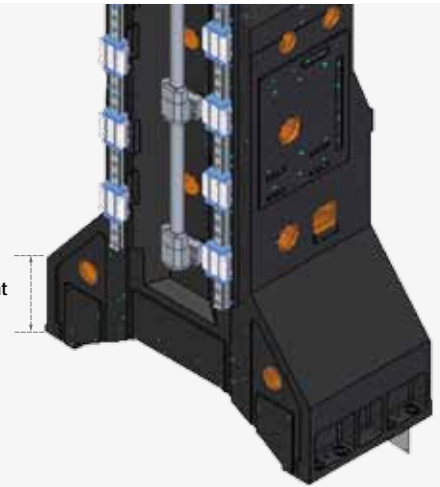
When the distance between the table top and the spindle nose needs to be extended, for example, accommodate a fixture or rotary axis on the table, solid one-piece raised column can be used to extend the distance.

Height

150mm (5.9 inch)

250mm (9.8 inch)

Height

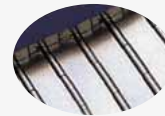


Oil Cooler

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 22~23



Hinged belt

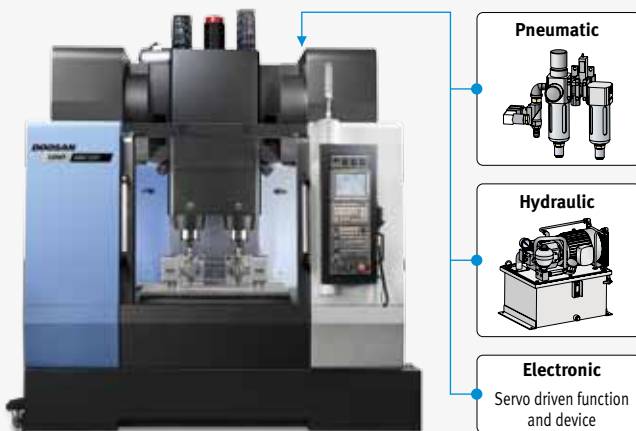


Magnetic scraper

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.

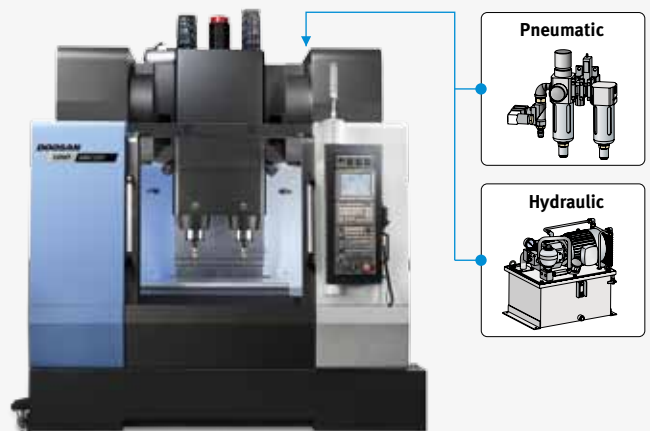
4th axis auxiliary device interface option 40

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



Hydraulic / Pneumatic fixture line option

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






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

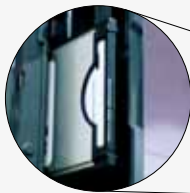
iHMI Touch screen option

- 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.

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.)

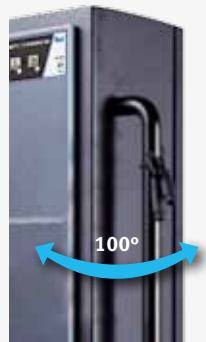


MPG handle



Swivel operator panel

The operation panel is capable of swiveling by 90 degrees to enhance convenience.



Easy Operation Package

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

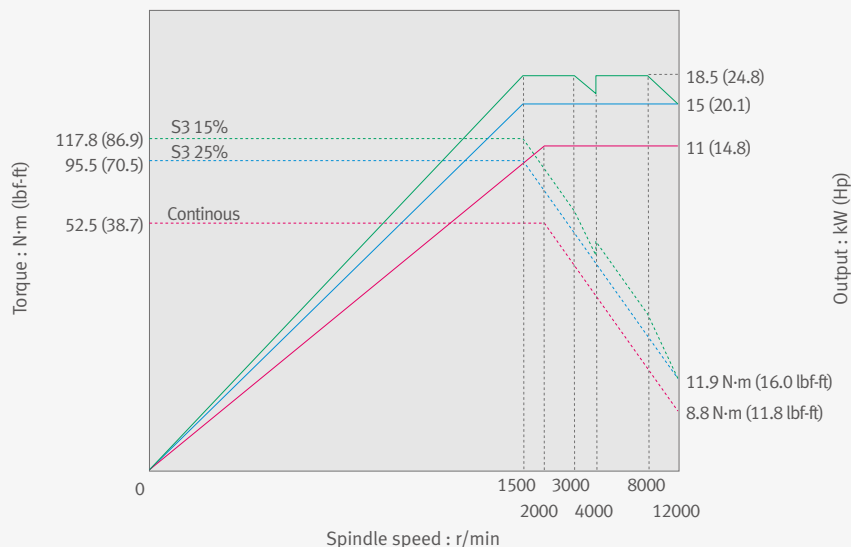
If tool overload is detected during operation, the feed rate is controlled to prevent the tool from being damaged.

Spindle Power – Torque Diagram / Table

Spindle

12000 r/min

Max. spindle power **18.5 kW** (24.8 Hp) Max. spindle torque **117.8 N·m** (86.9 lbf-ft)

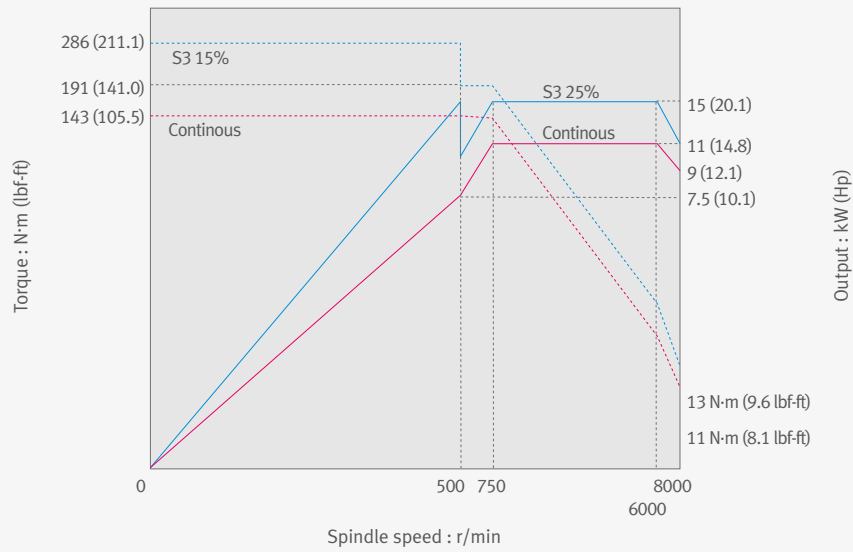


Spindle Power – Torque Diagram / Table

Spindle

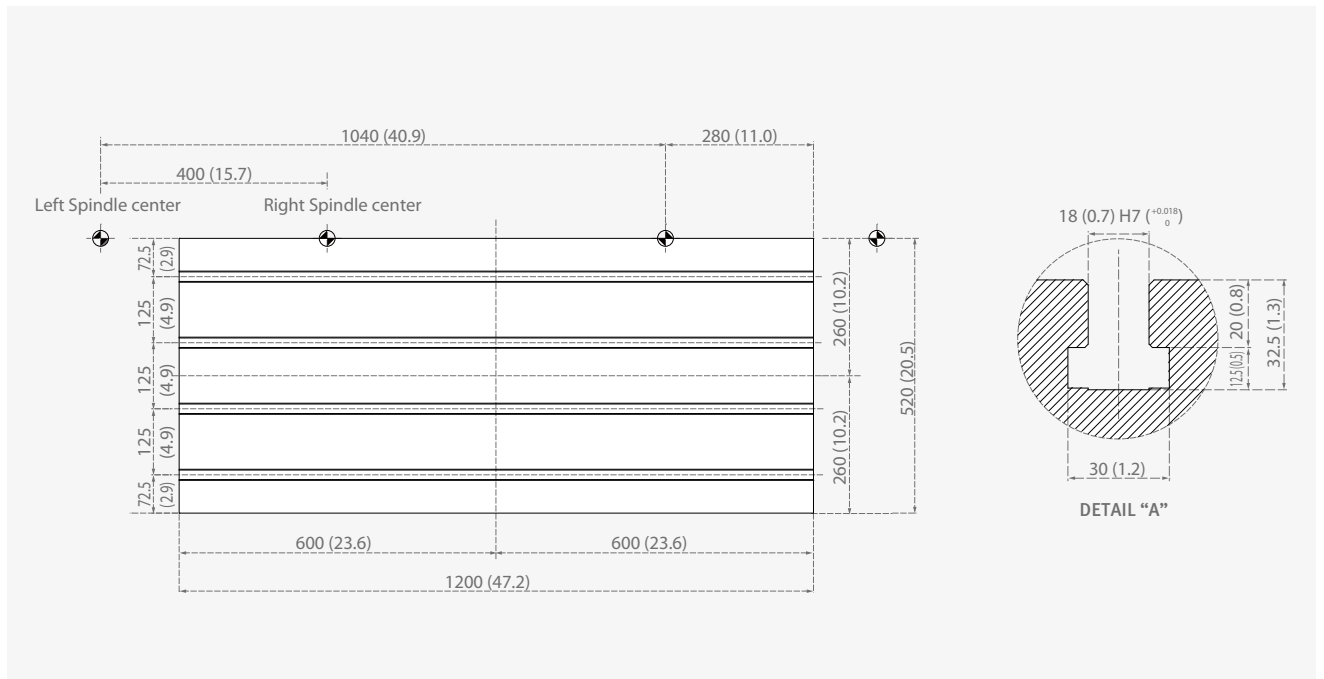
8000 r/min option

Max. spindle power **15 kW** (20.1 Hp) Max. spindle torque **286 N·m** (211.1 lb·ft)



Table

Unit : mm (inch)

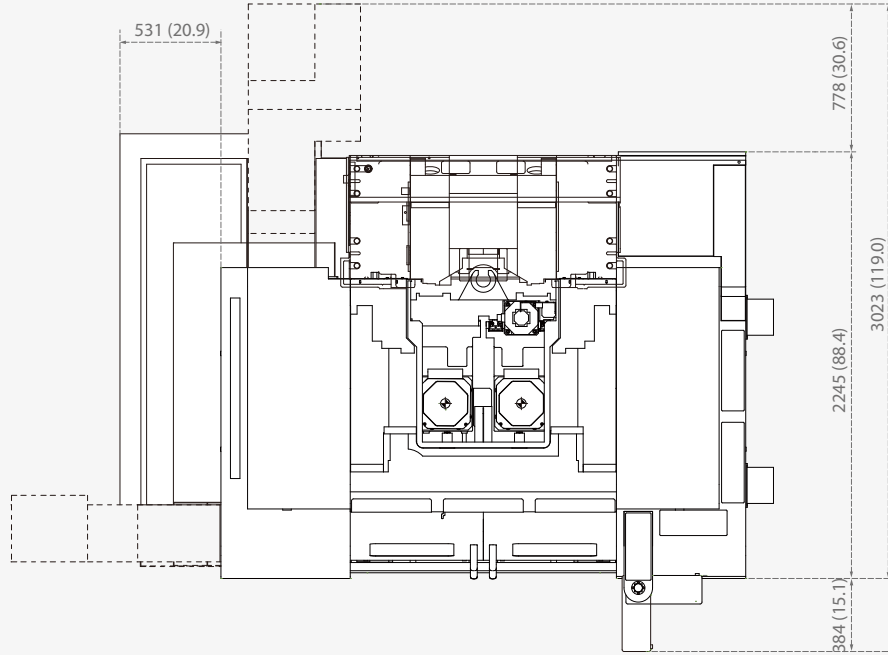


External Dimensions

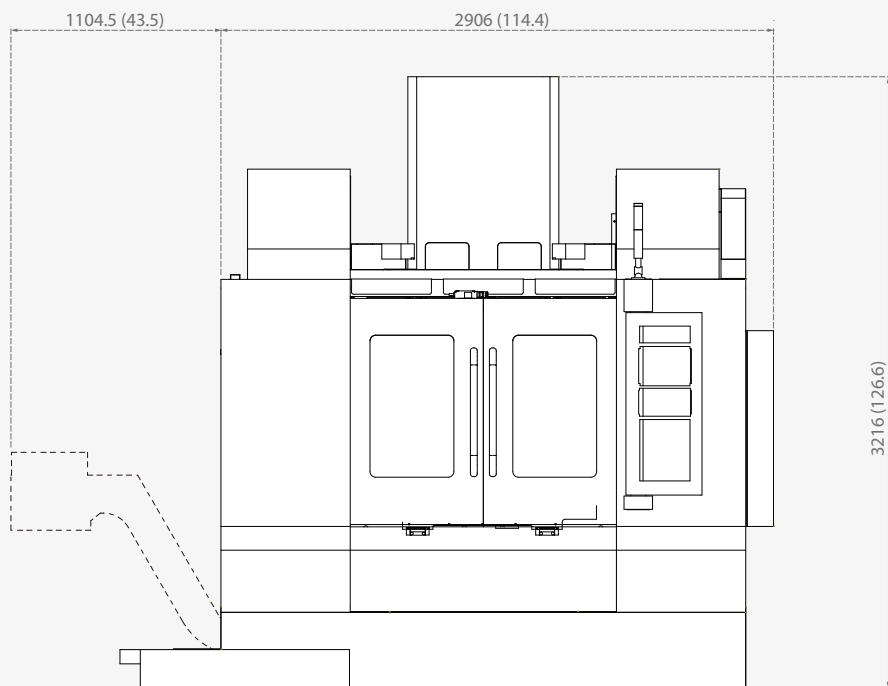
DMP 500/2SP

Unit : mm (inch)

Top View



Front View



* Some peripheral equipment can be placed in other places

Machine Specifications

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Basic Structure

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Options
Applications
Diagrams
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Customer Support Service



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

*{ } : Option

CNC Unit Specifications

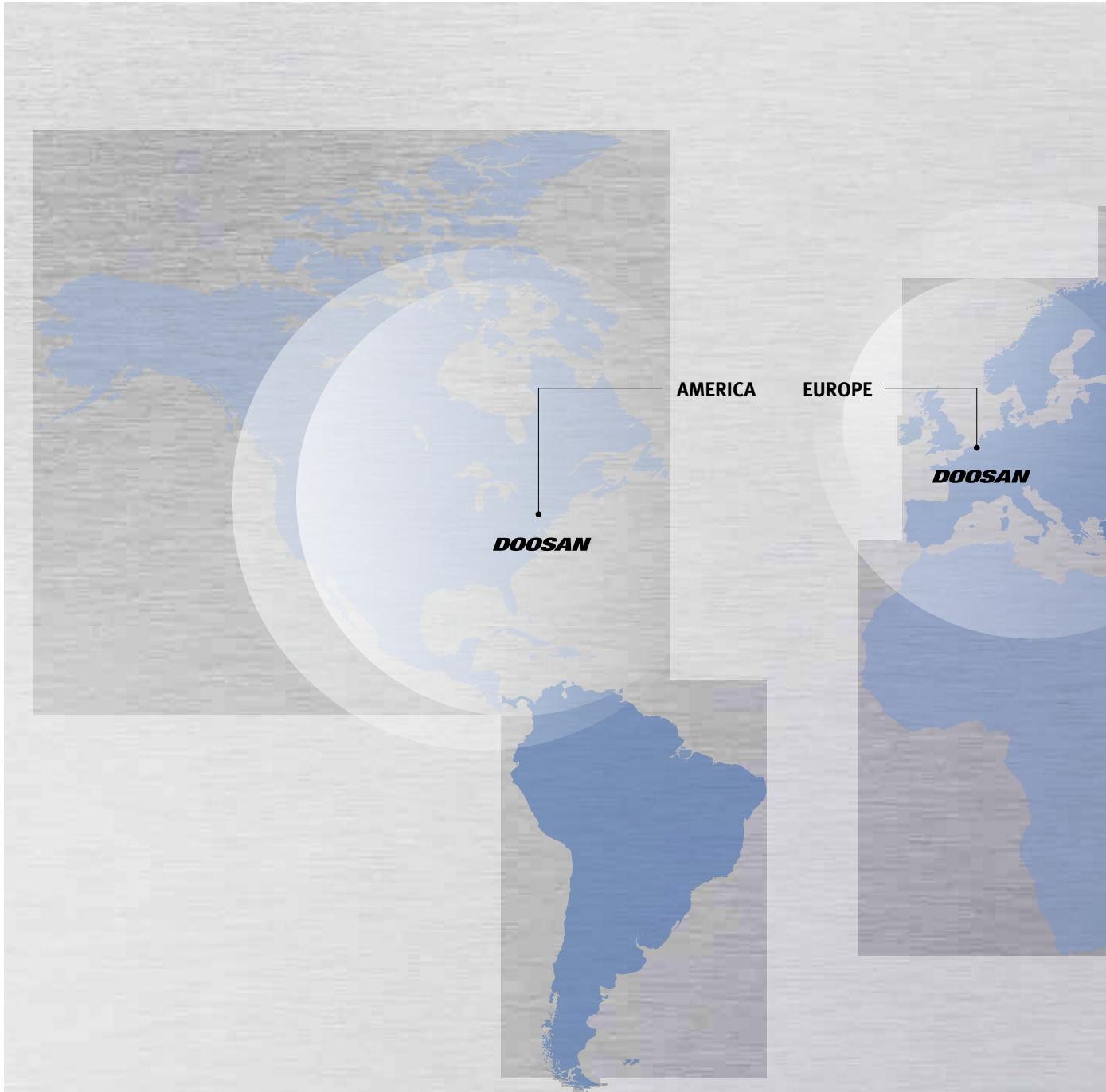
● Standard ○ Optional X N/A

FANUC

No.	Items	Spec.	DMP 500/2SP
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	Spindle & M code Function	M- code function	
14		Retraction for rigid tapping	
15		Rigid tapping	G84, G74
16	Tool Function	Number of tool offsets	400 ea
17		Tool nose radius compensation	G40, G41, G42
18		Tool length compensation	G43, G44, G49
19		Tool life management	
20		Addition of tool pairs for tool life management	
21		Tool offset	G45 - G48
22	Programming & Editing Function	Custom macro	
23		Macro executor	
24		Extended part program editing	
25		Part program storage	512KB (1280m)
26		Part program storage	2MB (5120m)
27		Inch/metric conversion	G20 / G21
28		Number of Registered programs	1000ea
29		Optional block skip	9 BLOCK
30		Optional stop	M01
31		Program number	O4-digits
32		Playback function	
33	OTHER FUNCTIONS (Operation, setting & Display, etc)	Addition of workpiece coordinate system	G54.1 P1 - 48 (48 pairs)
34		Embedded Ethernet	
35		Graphic display	Tool path drawing
36		Loadmeter display	
37		Memory card interface	
38		USB memory interface	Only Data Read & Write
39		Operation history display	
40		DNC operation with memory card	
41		Optional angle chamfering / corner R	
42		Run hour and part number display	
43		High speed skip function	
44		Polar coordinate command	G15 / G16
45		Programmable mirror image	G50.1 / G51.1
46		Scaling	G50, G51
47		Single direction positioning	G60
48		Pattern data input	
49		Machine alarm diagnosis	
50		CNC screen display	
51		CNC screen dual display function	
52		One touch macro call	
53	Machining quality level adjustment		
54	EZ Guide i (Conversational Programming Solution)		
55	iHMI with Machining Cycle		
56	MANUAL GUIDE i		

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

Responding to Customers Anytime, Anywhere



Global Sales and Service Support Network

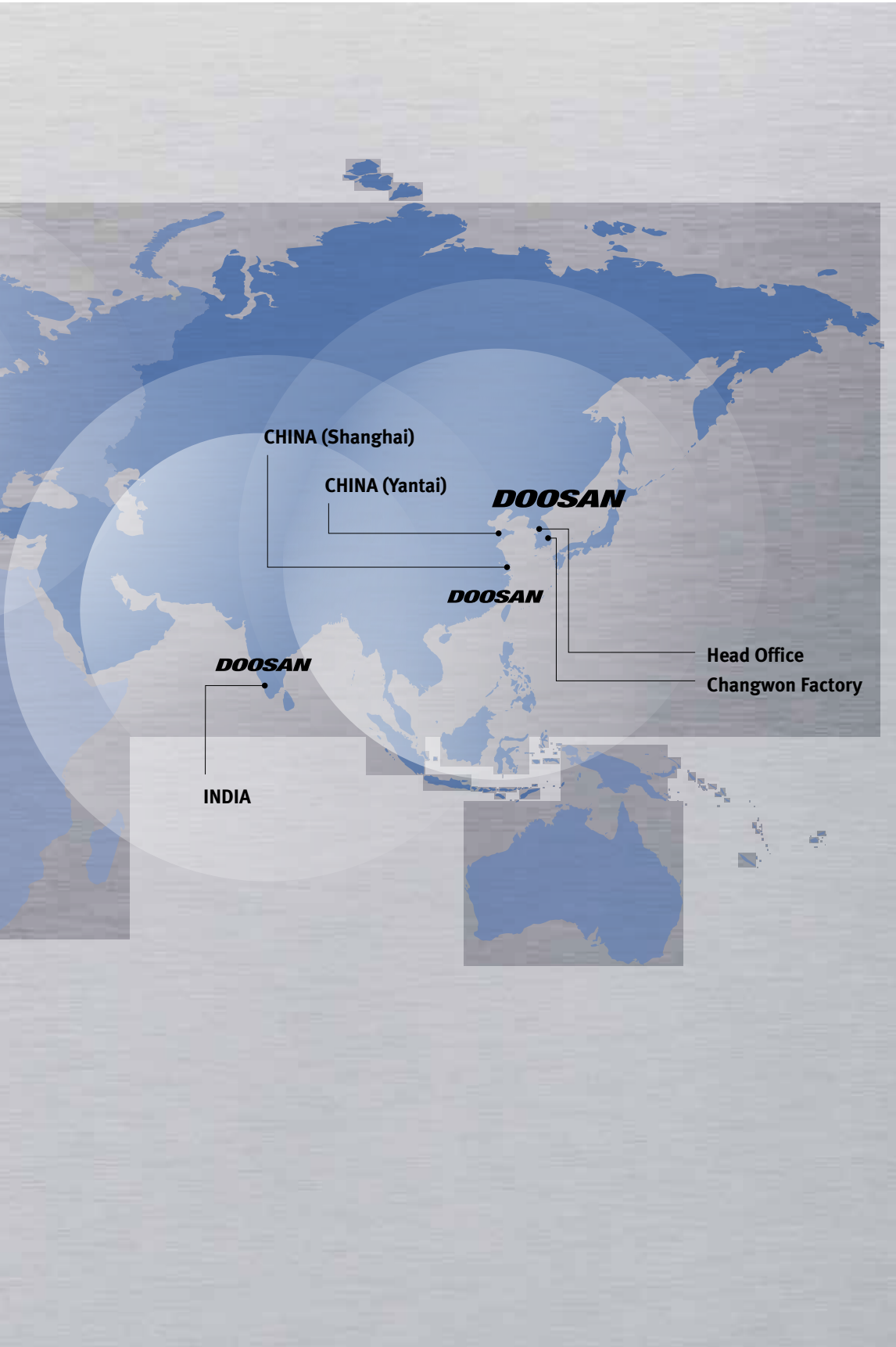
Corporations	Dealer Networks	Technical Centers	Service Post	Factories
4	164	51	198	3

Technical Center: Sales Support, Service Support, Parts Support

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

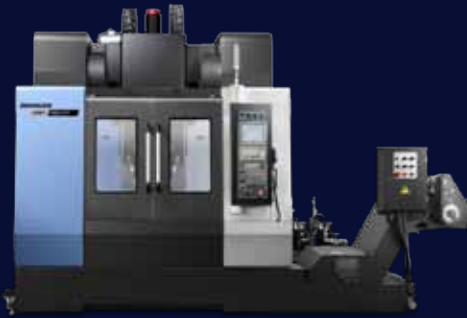
Training



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

Major Specifications

DMP 500/2SP



Description	Unit	DMP 500/2SP
Max. spindle speed	r/min	12000 {8000}*
Max. spindle power	kW (Hp)	18.5/11 {15/11}* (24.8/14.8 {20.1/14.8})
Max. spindle torque	N·m (lbf·ft)	117.8 {286}* (86.9 {211.1})
Tool taper	-	ISO #40
Travel distance (X / Y / Z / W)	mm (inch)	1040 / 520 / 600 / 20 (40.9 / 20.5 / 23.6 / 0.8)
Tool storage capa.	ea	2-24 {2-30, 2-40}*
Table size	mm (inch)	1200 x 520 (47.2 x 20.5)
Machine dimensions (Width x Length x Height)	mm (inch)	2760 x 2400 x 3510 (108.7 x 94.5 x 138.2)
Machine weight	kg (lb)	8500 (18739.3)

*{ } Option

Doosan Machine Tools

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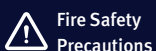
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* For more details, please contact Doosan Machine Tools.

* 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.

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