

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.



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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

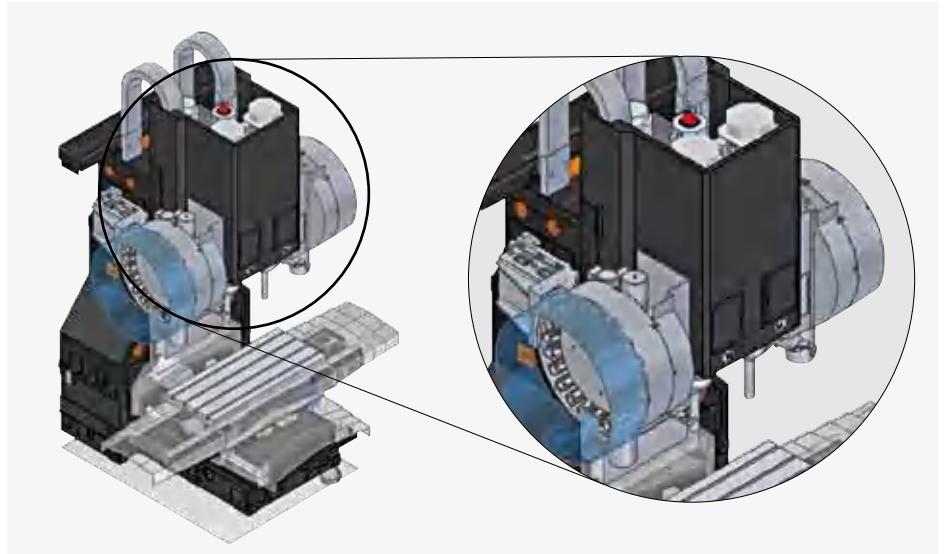
The customer can reduce the base machine cost compared to two conventional VMC's. Additionally, for ancillary items such as spindle probe, mist collector etc, only one is required, thereby reducing the total investment cost.

High productivity and small footprint

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

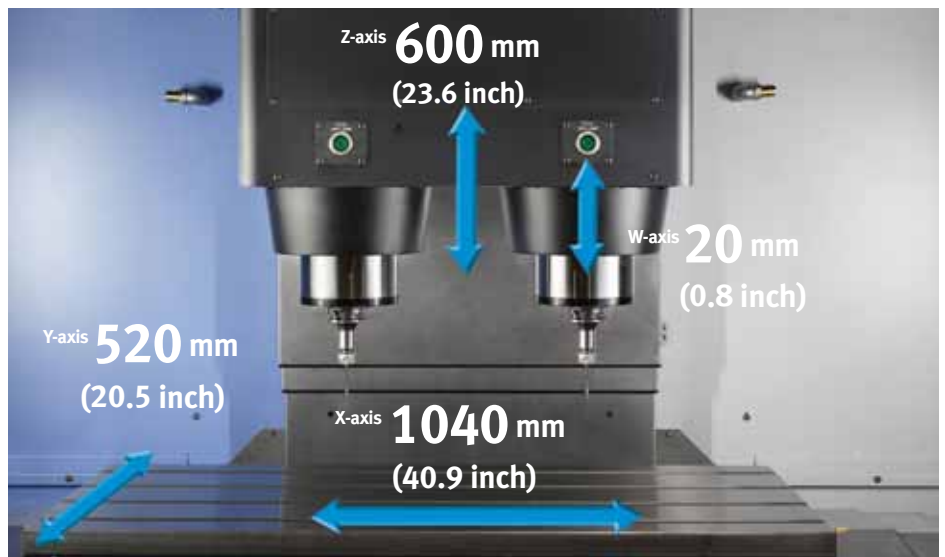
Basic structure

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

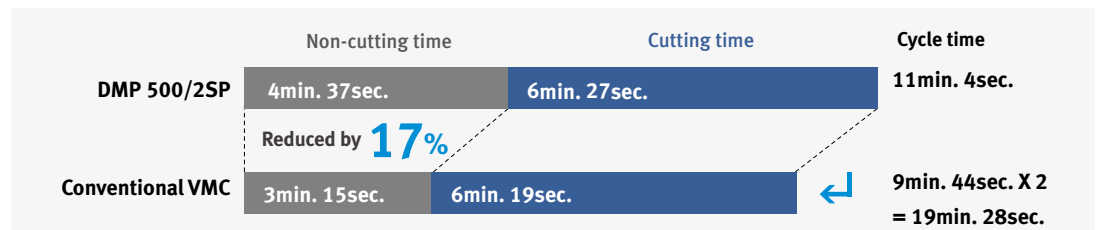
Max. spindle power
18.5/11 kW, 15/11 kW option
 (24.8 / 14.8 Hp) (20.1 / 14.8 Hp)

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


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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	Chip disposal	Chip pan		●	
22		Chip conveyor	Hinged type (Left / Right / Rear)		○
23			Magnetic scraper type (Left / Right / Rear)		○
24		Chip bucket (300L)		○	
25		Air blower		○	
26		Air gun		○	
27		Coolant gun		○	
28		Mist collector		○	
29	Precision machining option	Spindle thermal compensation		○	
30		Linear scale		○	
31		AICC I (40 block)		○	
32		AICC II (200 block)		○	
33	Measurement & Automation	Automatic tool measurement	TS27R	○	
34			OTS	○	
35		Automatic tool breakage detection		○	
36		Automatic workpiece measurement	OMP60	○	
37	Automatic front door with safety device		○		
38	Others	LED Work light		●	
39		3 color signal tower		●	
40		4th axis auxiliary device interface		○	
41		Tool load monitoring		○	
42		EZ Guide i		○	
43		Automatic power off		○	

* Please contact Doosan to select detail specifications.

Peripheral equipments

TSC option 16~19

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



Raised column option 13~14

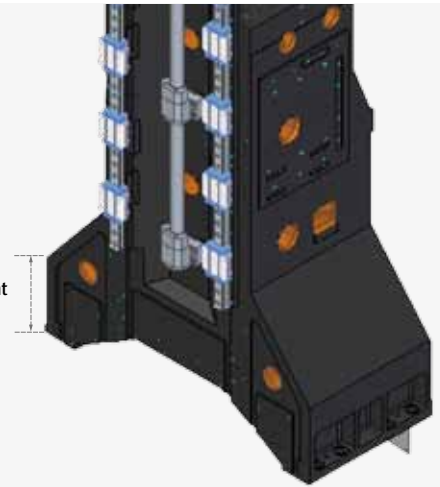
When the distance between the table top and the spindle nose needs to be extended, for example, accommodate a fixture or rotary axis on the table, solid one-piece raised column can be used to extend the distance.

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

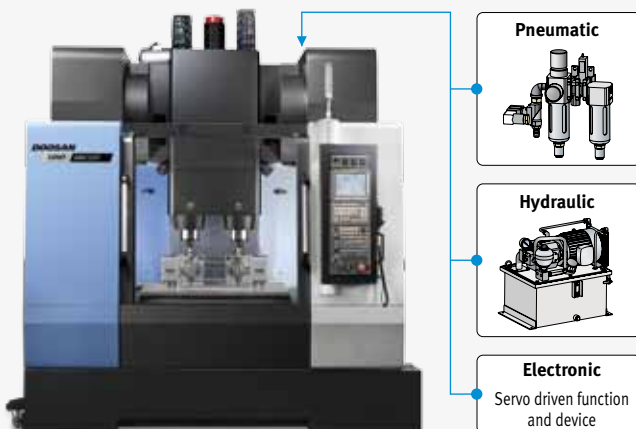


Magnetic scraper

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.

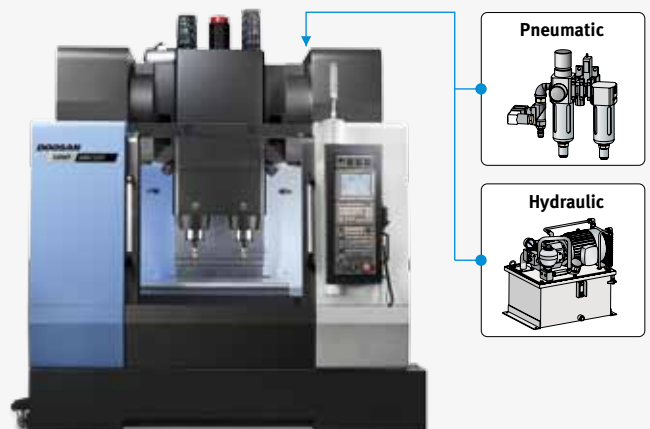
4th axis auxiliary device interface option 40

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.





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User convenience has been significantly enhanced with a new operation panel.

User-friendly operation panel

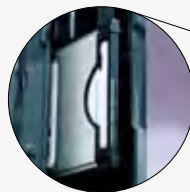
The newly-designed operation panel enhances operating convenience by common-design buttons and layout. Just like a PC, the QWERTY type keyboard has been adopted for easier and faster operation.

10.4" Display

1

- 10.4" Display
- USB & PCMCIA card (Std.)
- QWERTY type keyboard
- Easy to put button switch for attached option
- Ergonomic new design
- Vertical Key **1**
 - Improving convenient to use NC functions

PCMCIA Card & USB Port



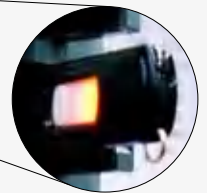
PCMCIA Card

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.



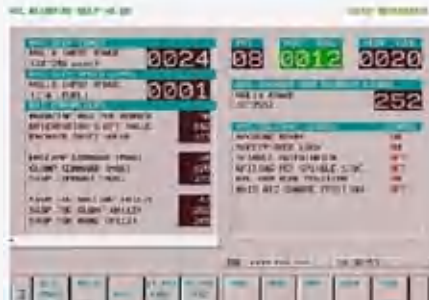
Work Offset Setting

Function to configure various work offset settings.



Tool management

This function controls information on the tools in the tool magazine pots.



ATC Recovery

In the event of an error during ATC (automatic tool changer) operation, follow the on-screen instructions for an easy and prompt solution.



Tool Load Monitoring

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)

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



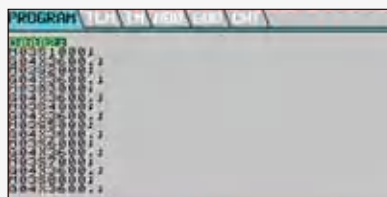
Thermal compensation function

A thermal error compensation function is provided to optimize machine accuracy over long periods.

Pop-up function

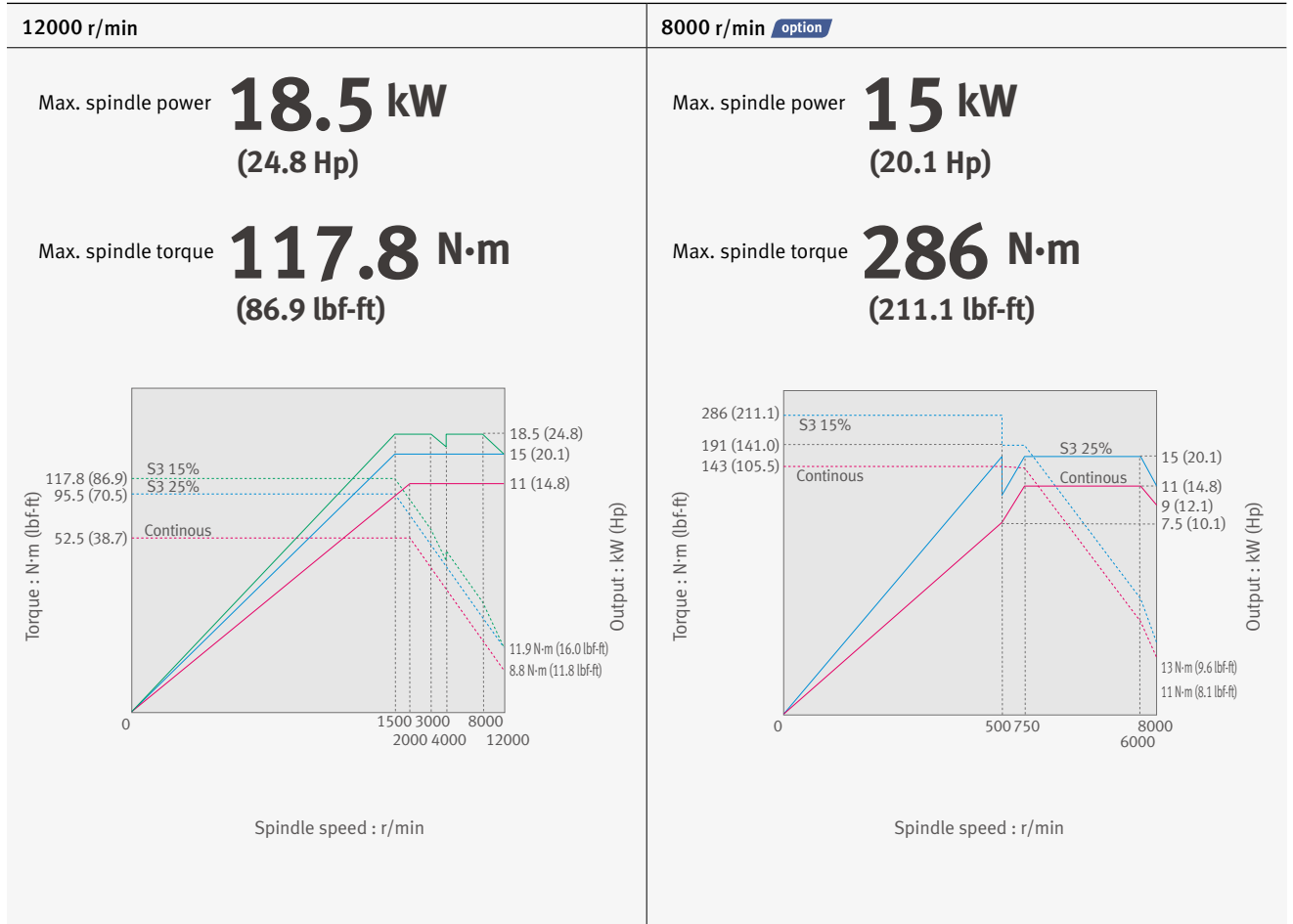
Various EOP functions can be monitored through the pop-up window on the NC main screen. (Press the CUSTOM2 button)

- 1 Display machining program
- 2 Tool Load Monitoring
- 3 Tool management data
- 4 M code list
- 5 G code list
- 6 Tool & Workpiece count



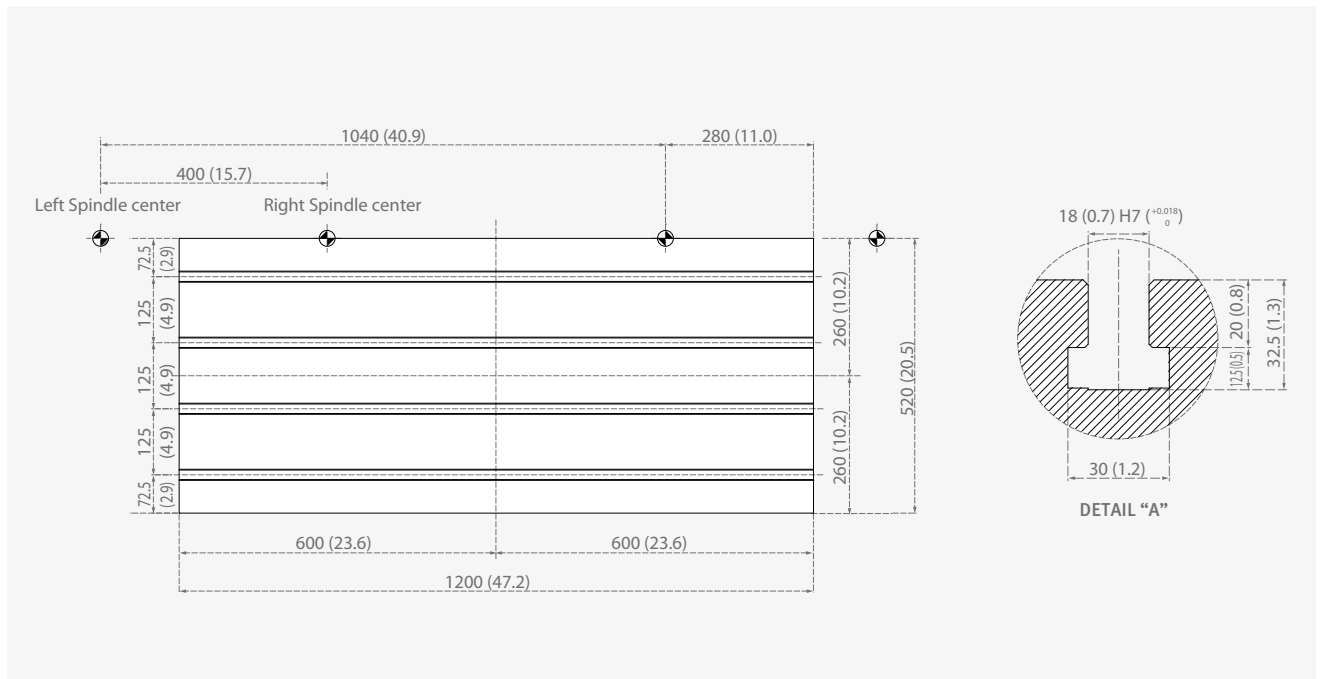
Spindle Power – Torque Diagram / Table

Spindle



Table

Unit : mm (inch)

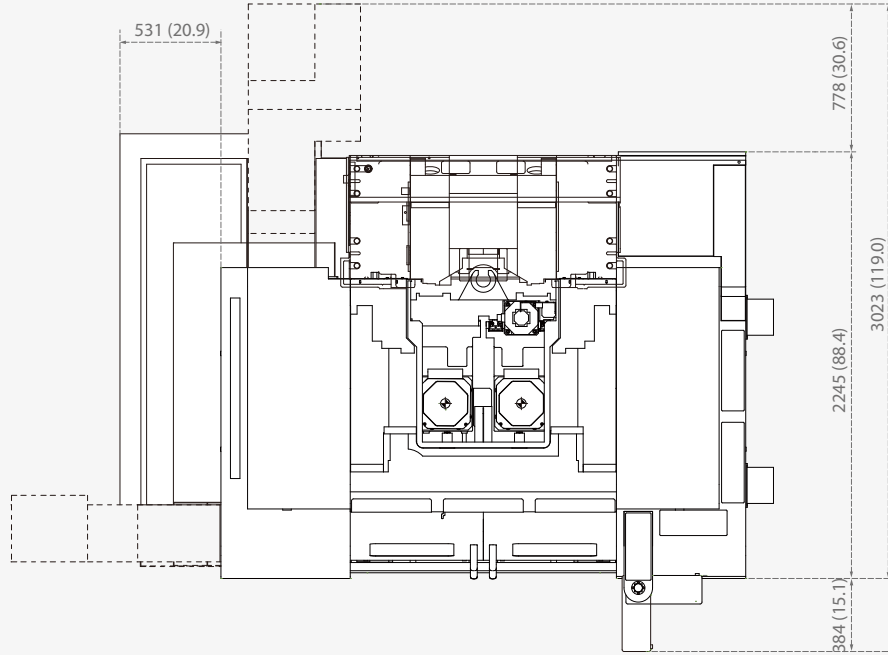


External Dimensions

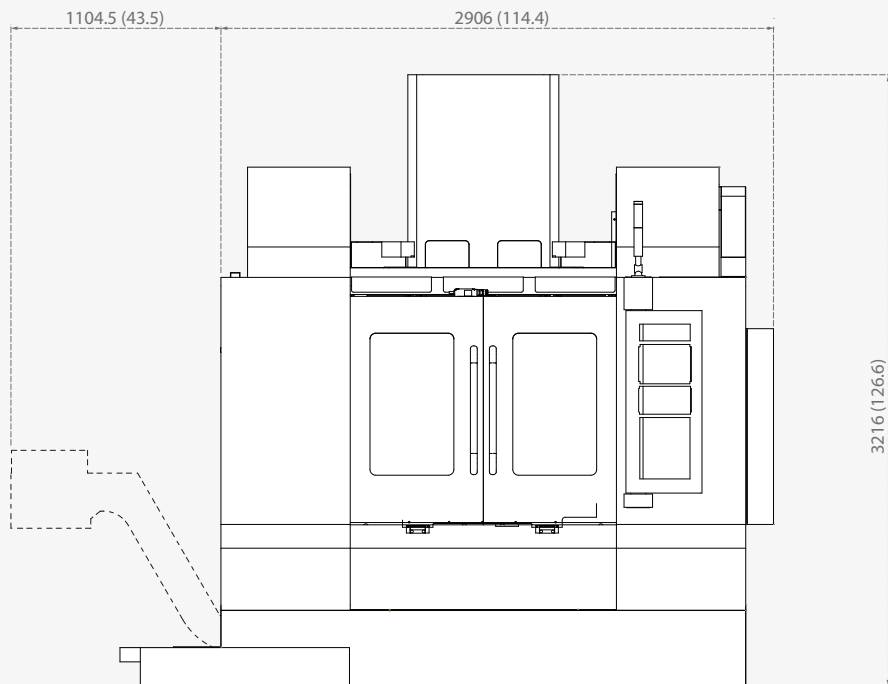
DMP 500/2SP

Unit : mm (inch)

Top View



Front View



* Some peripheral equipment can be placed in other places

Machine Specifications

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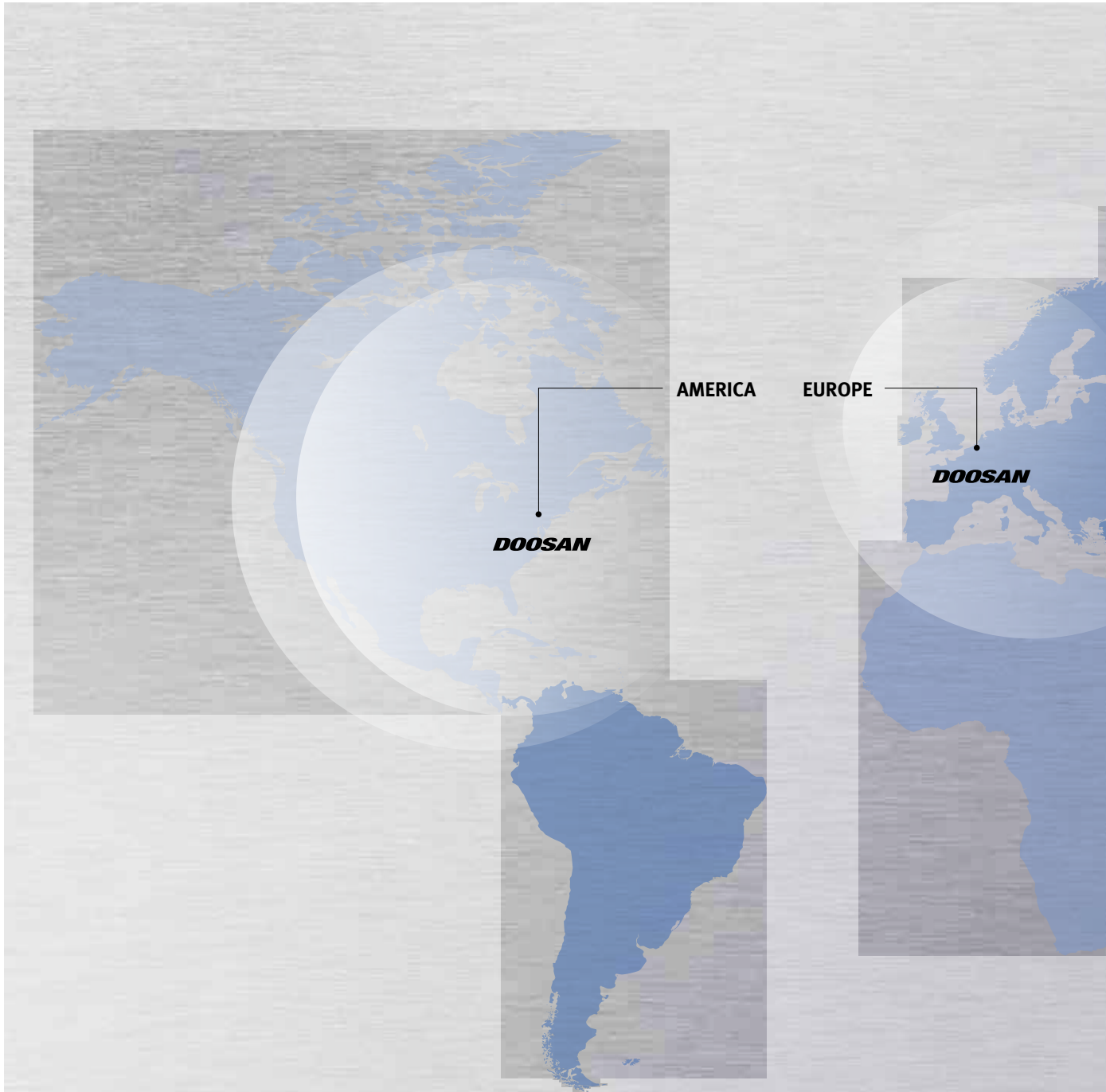
Description		Unit	DMP 500/2SP	
Travels	Travel distance	X axis	mm (inch) 1040 (40.9)	
		Y axis	mm (inch) 520 (20.5)	
		Z axis	mm (inch) 600 (23.6)	
		W axis	mm (inch) 20 (0.8)	
	Distance from spindle nose to table top		mm (inch)	150 ~ 750 (5.9 ~ 29.5)
	Distance between spindles		mm (inch)	400 (15.7)
	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	

*{ } : Option

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No.	Item	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		AI APC	20 BLOCK	
13		AICC I	40 BLOCK	
14	AICC II	200 BLOCK		
15	Spindle & M code Function	M- code function		
16		Retraction for rigid tapping		
17		Rigid tapping	G84, G74	
18	Tool Function	Number of tool offsets	400 ea	
19		Tool nose radius compensation	G40, G41, G42	
20		Tool length compensation	G43, G44, G49	
21		Tool life management		
22		Addition of tool pairs for tool life management		
23		Tool offset	G45 - G48	
24	Programming & Editing Function	Custom macro		
25		Macro executor		
26		Extended part program editing		
27		Part program storage	512KB (1280m)	
28		Part program storage	2MB (5120m)	
29		Inch/metric conversion	G20 / G21	
30		Number of Registered programs	400 ea	
31			1000ea	
32		Optional block skip	9 BLOCK	
33		Optional stop	M01	
34		Program number	04-digits	
35	Playback function			
36	OTHER FUNCTIONS (Operation, setting & Display, etc)	Addition of workpiece coordinate system	G54.1 P1 - 48 (48 pairs)	
37		Embedded Ethernet		
38		Graphic display	Tool path drawing	
39		Loadmeter display		
40		Memory card interface		
41		USB memory interface	Only Data Read & Write	
42		Operation history display		
43		DNC operation with memory card		
44		Optional angle chamfering / corner R		
45		Run hour and part number display		
46		High speed skip function		
47		Polar coordinate command	G15 / G16	
48		Programmable mirror image	G50.1 / G51.1	
49		Scaling	G50, G51	
50		Single direction positioning	G60	
51	Pattern data input			

Responding to Customers Anytime, Anywhere



Global Sales and Service Support Network

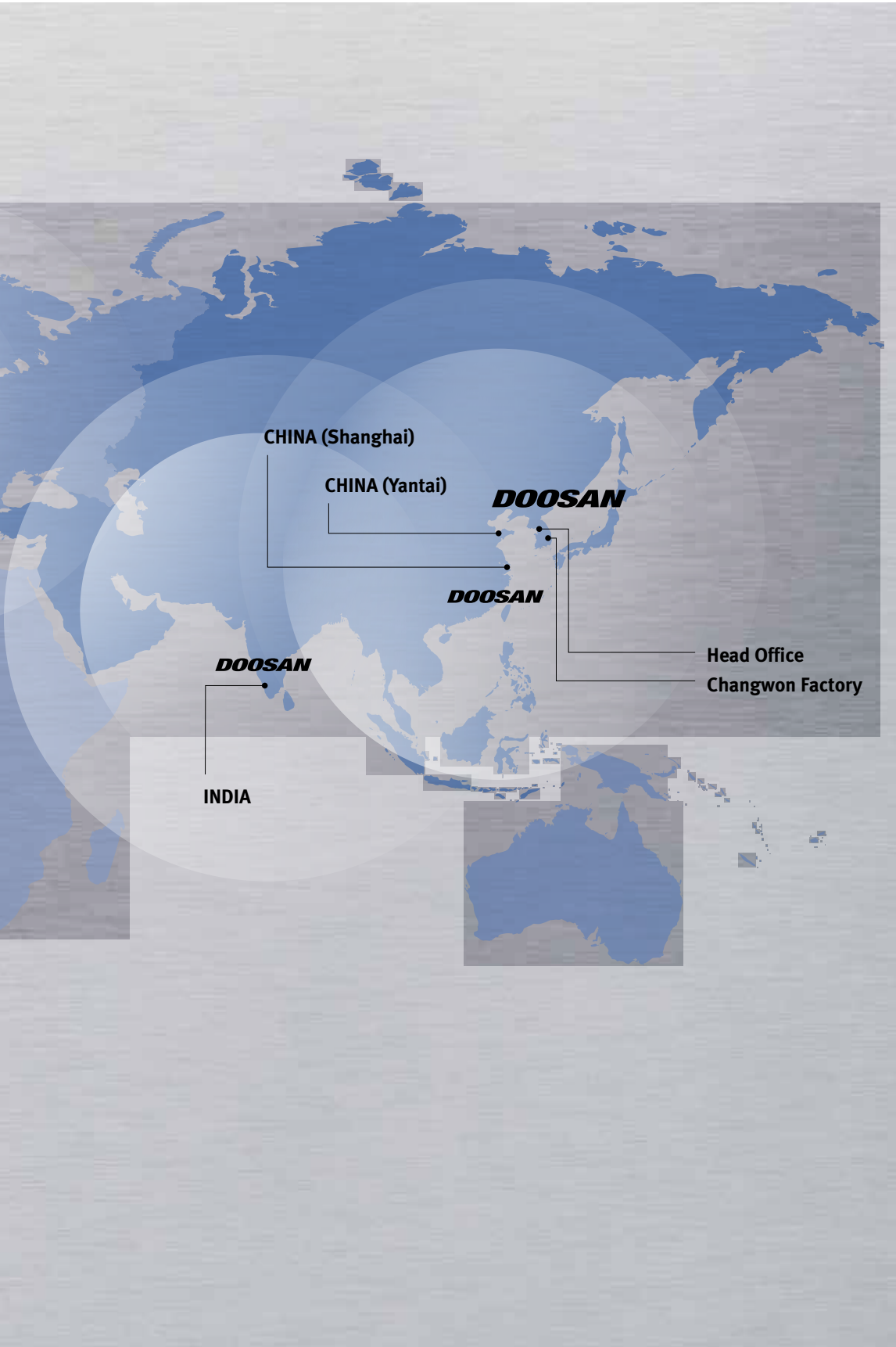
Corporations	Dealer Networks	Technical Centers	Service Post	Factories
4	164	51	198	3

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

www.doosanmachinetools.com

www.facebook.com/doosanmachinetools

www.youtube.com/c/DoosanMachineToolsCorporation

Head Office

22FT Tower, 30, Sowol-ro 2-gil, Jung-gu,
Seoul, Korea, 04637

Tel +82-2-6972-0370 / 0350

Fax +82-2-6972-0400

Doosan Machine Tools America

19A Chapin Rd., Pine Brook, NJ 07058,
U.S.A.

Tel +1-973-618-2500

Fax +1-973-618-2501

Doosan Machine Tools India

106 / 10-11-12, Amruthahalli,
Byatarayanapura, Bellary road, Bangalore-560
092, India

Tel +91-80-4266-0122 / 121 / 100

Doosan Machine Tools Europe

Emdener Strasse 24, D-41540 Dormagen,
Germany

Tel +49-2133-5067-100

Fax +49-2133-5067-111

Doosan Machine Tools China

Room 101,201,301, Building 39 Xinzhuan
Highway No.258 Songjiang District, China
Shanghai(201612)

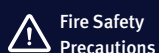
Tel +86-21-5445-1155

Fax +86-21-6405-1472

* 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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