DOOSAN

PUMA TT2500
series

Multi-Axis Turning Center

PUMA TT2500 series

PUMA TT2500MS
PUMA TT2500SY

MACHINE GREATNESS™

PUMA TT2500 series

High performance turning center featuring first & second spindle that have the same power and capacity, with upper & lower turrets on the grounded box type bed. Simultaneous machining on two faces with both spindles and turrets and virtual realization of Y-axis function will bring you double productivity.

Contents

Productivity doubled with the adoption of a right spindle and a lower turret!

The left and right spindles and the upper and lower turrets operate independently to double the machine's productivity.

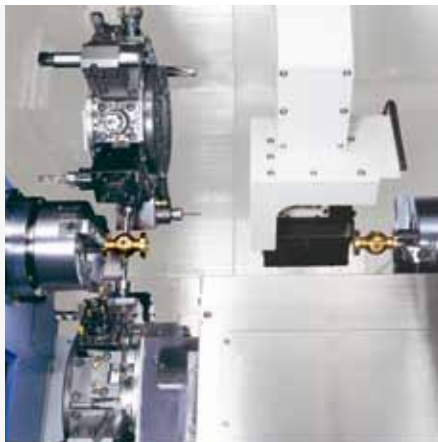### Excellent rigidity and power implemented with axis travel system optimization technology!

All guide ways are wide wraparound rectangular type for unsurpassed long term rigidity and accuracy.
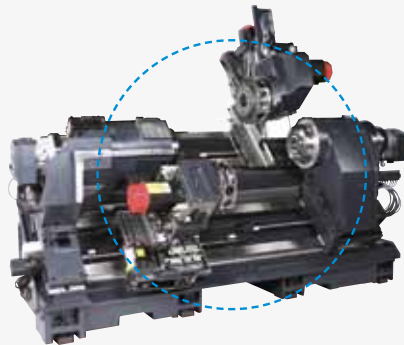
Equipped with an advanced finished-part removal system for both spindles!

The left and right spindles are equipped with independent part catcher and unloader systems to provide a fully automated manufacturing system.

Sample

Basic Structure

Machine construction

Perfect integration of multi-process and high productivity are achieved by Left & right spindle of the same power and capacity, with upper & lower turrets on the grounded box type bed.

Achievement of PUMA TT machines

Continuous process accuracy, Shorten setting time, Optimal distribution of cycle and Automated works
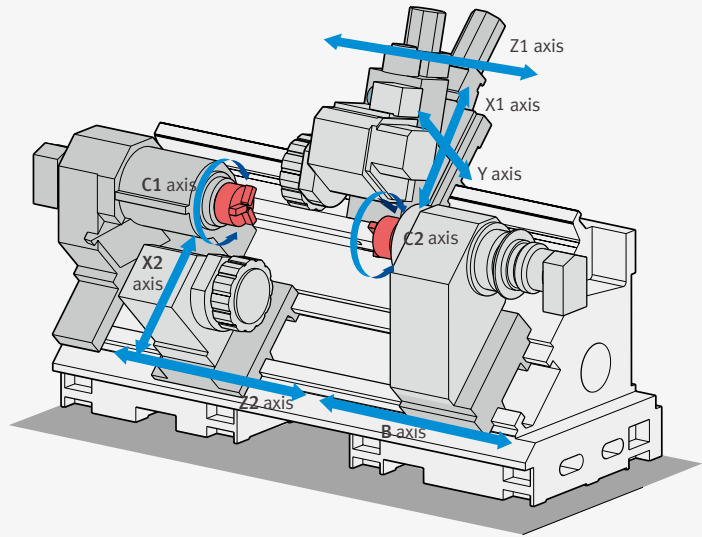
Robust Design

All guide ways are wide wraparound rectangular type for unsurpassed long term rigidity and accuracy.

FEM (Finite Element Method) Analysis

The heavily ribbed torque tube design prevents twisting and deformation.

Spindle

High productivity achieved with high-speed, high-power spindle motor.

Built-in Structure

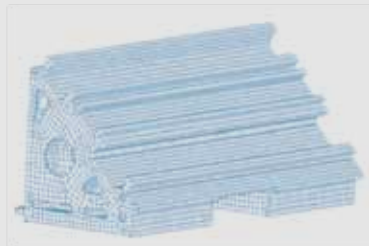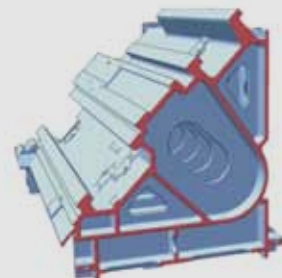Both left and right spindle have built-in motor spindles that wholly covered with oil cooling system to ensure remarkable range of applications from heavy duty cutting with high power at low speed to fine to finish cutting at high speed and optimize thermal displacement.

Both Left and Right spindle are designed to minimize maleffects of thermal distortion which can hit continuous machining precision seriously. Especially the same capacity of both spindles improves productivity remarkably of single machine.

Max. spindle speed (10inch)

3500 **r/mim**

Motor (30 min)

26 / 22 **kW (34.9 / 29.5 Hp)**

Oil Cooling Unit for Spindles

Oil cooler

Oil jacket

Left Spindle

C1 axis

Right Spindle

C2 axis

Main spindle
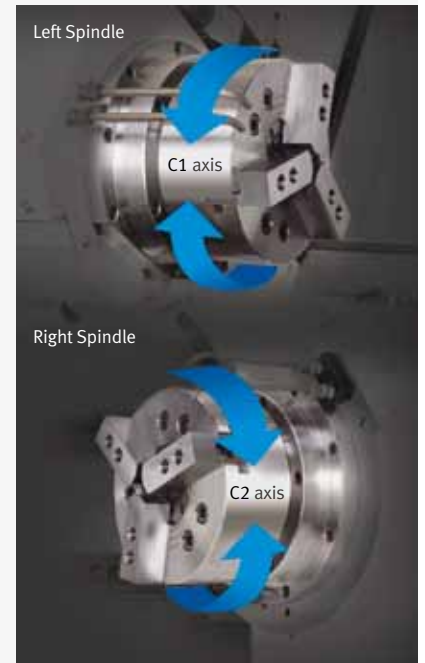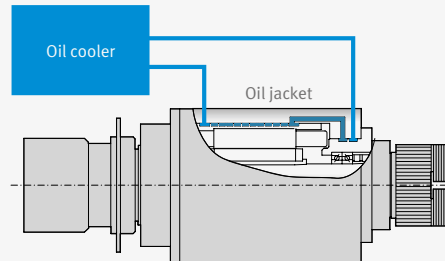
Turret

Features stronger and faster turrets; upgraded servo motors for faster and more accurate tool rotation; and a stabilized structure for higher productivity and heavier-cutting capability.

Turret

Total of 24 tool stations upper and lower turret(BMT65P) make it possible to complete complicated parts requiring many tools in just one set-up. Reliable servo driven turrets reduce the total cycle time required to machine parts.

Index time (1-station swivel)

0.20 **s**

No. of tool station (Upper+Lower turret)

24 **(12+12) st**

Radial BMT65P

The turret features BMT65P style tooling in which the toolholders are mounted directiy to the turret's periphery using 4 large bolts.

Axis Features

Travel

X 1-axis (Upper turret)
255 mm (10.0 inch)

X 2-axis (Lower turret)
190 mm (7.5 inch)

Z 1-axis (Upper turret)
800 mm (31.5 inch)

Z 2-axis (Lower turret)
900 mm (35.4 inch)

A -axis
810 mm (31.9 inch)

C1-axis · Y-axis · Upper turret · A-axis · C2-axis · Left spindle · Lower turret · Z1-axis · Right spindle · X2-axis · Z2-axis
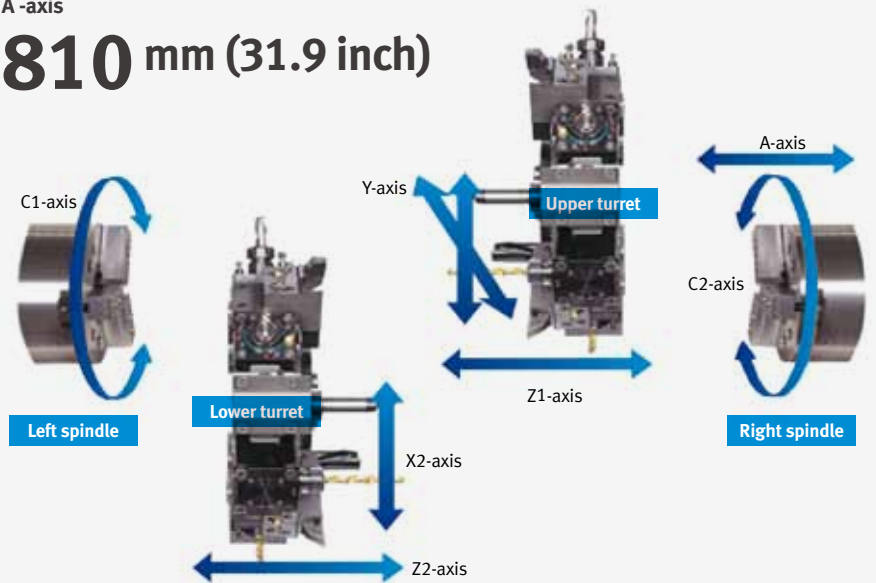
Machining range

A : Max. turning dia.
(on Upper turret)
390 mm (15.4 inch)

(on Lower turret)
300 mm (11.8 inch)

B : Max. turning length
350 mm (13.8 inch)

C : Max. bar working dia.
81 mm (3.2 inch)

Ø C · Ø A · Ø C · B · B
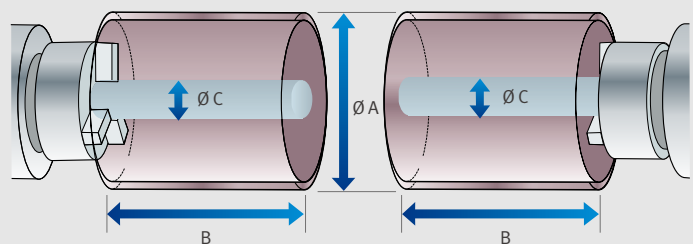
Rapid Traverse

X-axis

20 m/min

(787.4 ipm)

Z-axis

24 m/min

(944.9 ipm)

Outstanding rigidity for high feedrates
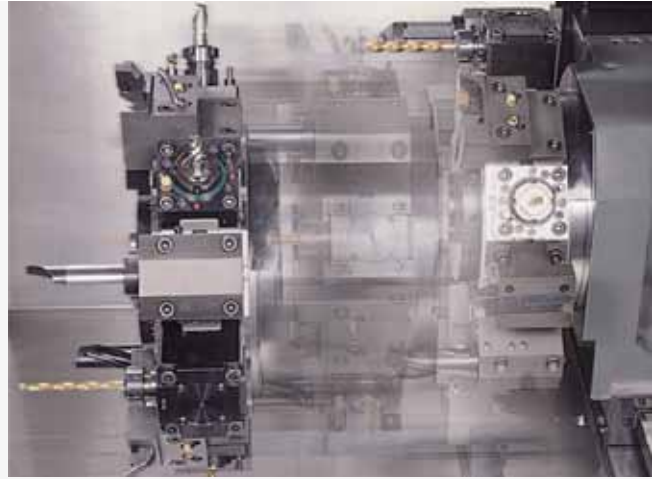
Variation, processing

Virtual y-Axis Function

Y-axis addition to upper turret on SY series brings complex machining to completion in just one set-up. Synchronous interpolation of X1-axis and Ys-axis in double ways structure creates the Y-axis function.

Y-axis travel

120 (±60) **mm**

(4.7 (±2.4) inch)

Y-axis rapid

7.5 m/min

(295.3 ipm)

Y-axis Working Range

Spindle center

348.923 (13.7)

6.923 (0.3)

50.229 (2.0)

60 60 (2.4) (2.4)

Interference area with Right spindle

141.077 (5.6)

10 (0.4)   245 (9.6)

255 (10.0) (X1-axis travel)   100 (3.9)

Angular Milling unit moving area
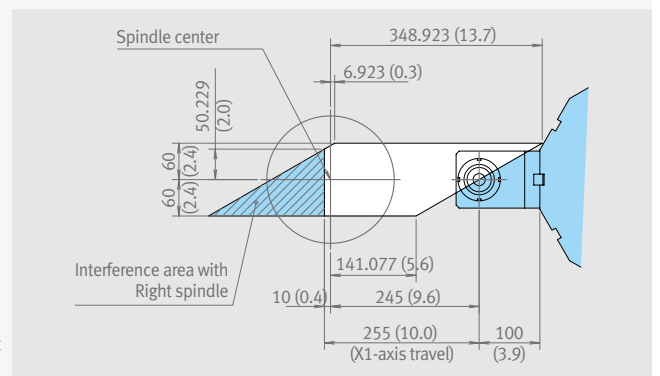
Unit : mm (inch)

Y-axis Working Range

By simultaneous X-Y-Z-axis feed control and C-axis function to guide precise circular orientation of spindle, Y/X axes circular interpolation simplifies the machining of complex shapes in faster cycle time.

Y-axis
X-axis
On-center face groove

Y-axis
X-axis
Poly-side machine

Y-axis
X-axis
Off-center side groove

X1+Y-axis
Y&X-axis circular interpolation

Product Overview

Basic Information

Basic Structure
Line-up /
Processing

**Detailed
Information**

Options
Applications
Capacity Diagram
Specifications

**Customer Support
Service**

Machine Capacity

Heavy-Duty Cutting, OD
(Left spindle & upper turret)

Making full use of the high output motor, heavy-duty O.D. cutting is powerful and precise even with large workpieces.

Chip removal rate

348 Cm³/min (21.2 inch³/min)

Cutting depth

10 mm (0.4 inch)

Material	Cutting speed (m/min (ipm))	Feedrate (mm/rev (ipr))	Spindle speed (r/min)
Carbon steel, SM45C	120 (4724.4)	0.36 (0.0)	320

Balanced Cutting, OD
(Left spindle & upper - lower turret)

The synchronous control of Upper and Lower turrets makes O.D. cutting with high precision balanced cutting.

Chip removal rate

367 Cm³/min (22.4 inch³/min)

Cutting depth

5 mm x **2** (0.2 inch)

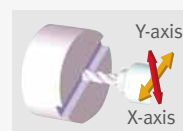| Material	Cutting speed (m/min (ipm))	Feedrate (mm/rev (ipr))	Spindle speed (r/min)
Carbon steel, SM45C	120 (4724.4)	0.36 (0.0)	320

Drilling

Tool	Ø 20 HSS drill
Material	Carbon steel SM45C
Rotary tool spindle speed (r/min)	1,000
Feedrate (mm/rev (ipr))	0.3 (0.0)
Chip removal rate (cm3/min (inch3/min))	60 (3.7)
Drilling depth (mm (inch))	10 (0.4)

Tapping

Tool	M16×2.0
Material	SM45C (JIS S45C)
Rotary tool spindle speed (r/min)	600
Feedrate (mm/min (ipm))	1200 (47.2)

Machining examples

High productivity

Cycle Time

1 turret | Actual cutting | Non-cutting operations

TT series | Actual cutting | Non-cutting operations
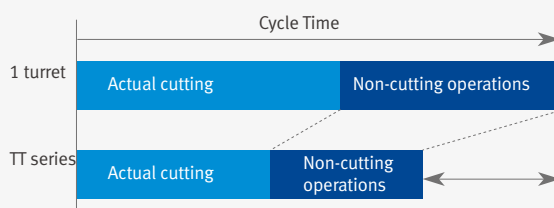
Productivity

x 1.7

Reliable Long-Run Machining Accuracy

Roundness

0.40 μm
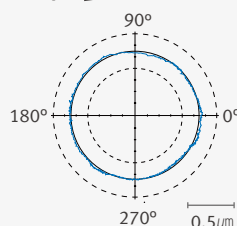
Roughness

0.23 μm Ra

90°

180°   0°

270°   0.5μm
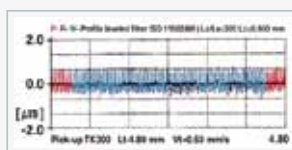
Tool	Ø 20 HSS drill
Material	AL2024
Outer diameter (mm (inch))	60 (2.4)
Spindle speed (r/min)	1,300
Feedrate (mm/rev (ipr))	0.05 (0.0)

*The machining accuracy indicated is just for reference. Depending on cutting and environmental conditions during measurement, the results can be different.

Ergonomic Design

Safety window on front door

Viewing window is designed and was tested under heavy condition to protect operator against possible dangers during real cutting thanks to its shock absorbing laminated glass and double panel construction. The window without grating also provides a clear view of the machine inside.
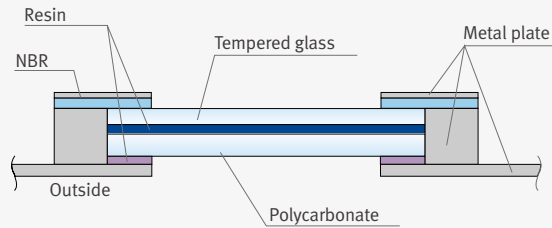
Swivel type operator panel

Operator oriented design with 90°swivel

0~90°

High maintainability

Pressure control for Left spindle chucking

Pressure control for Right spindle chucking (or Tail stock)

Lubrication tank

Separate coolant tank
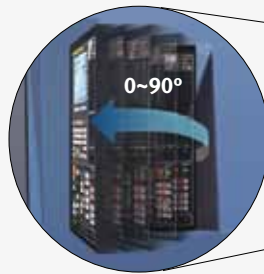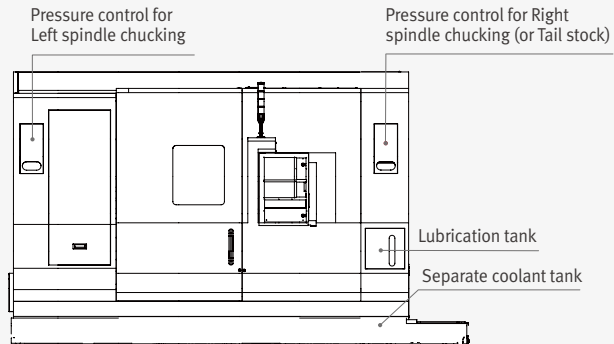
Eco-Friendly Design

Oil Skimmer `option`

Another suggestion to prolong the life time of the coolant water. A belt-driven type oil skimmer picks up and removes waste oil from the coolant tank that is easily drained.

Collection of Waste Lubrication Oil

Less waste lubrication oil extends the life time of the coolant water and cut down the grime and offensive smell of the machine inside.

No Coolant Leakage

Rigorously designed, manufactured and tested machine covers do not permit coolant leakage in any condition. The factory always keeps our environment clean.

Standard / Optional Specifications

Various options are available to satisfy all the customers' requirements.

● Standard ○ Optional X N/A

NO.	Description	Features	PUMA TT2500series
1	Chuck (Left / Right)	10 Inch	●
2		None	○
3	Jaws (Left / Right)	Soft Jaws	●
4		Hardened & Ground Hard Jaws	○
5	Chucking option	Dual Pressure Chucking	○
6		Chuck Clamp Confirmation	●
7	Tailstock	Tail Center For Turret	○
8	Coolant Pump	1.5 bar	●
9		4.5 / 7 / 10 / 14.5 / 28 bar	○
10	Coolant options	Oil Skimmer	○
11		Coolant Chiller	○
12		Coolant Pressure Switch	○
13		Cooling Flow Switch	○
14		High Coolant Interface	○
15		Chuck Coolant (Left / Right)	○
16		Through Spindle Coolant(T.S.C) For Spindle (Left / Right)	○
17		Coolant Gun	○
18	Chip processing options	Chip Conveyor_Side Type	○
20		Chip Conveyor_Rear Type	○
21		Chip Bucket	○
22		Air Blow (Left / Right)	●
23		Mist Collector	○
24	Measurement & Automation	Tool Setter (Manual / Auto)	○
25		Parts Catcher And Box	○
26		Parts Unloader And Conveyor	○
27		Work Ejector	○
28		Auto Door	○
29		Cut-Off Confirmation	○
30		Work / Tool Counter	○
31		Robot Interface (PMC I/O, Profibus)	○
32		Bar Feeder Interface	○
33	Optional devices	Tool Load Monitoring	○
34		Linear Scale (X1, X2, Z1, Z2, Y)	○
35		Signal Tower	○
36		Air Gun	○
37		Air Conditioner For Electric Cabinet	○
38		Light For Electric Cabinet	○
39		Extra M-Code (4ea)	○
40		Auto Power Off	○
41		Quick change tooling(CAPTO)	○
42	Customized Special Option	Coolant level switch : Sensing level - Low	○
43		Parts Unloader And Conveyor_Gripper Type	○
44		Automatic Top Door	○
45		Coolant Gun	○
46		Coolant Chiller	○
47		Chip Coveyor_Drum Filter Type	○
48		Shower Coolant	○
49		Air Limit Sensing On Chuck_Preparation	○
50		Rotary Type Window Wiper_Eletrical	○
51		TSC For Main/Left Spindle	○
52		TSC For Sub/Right Spindle	○
53		TSA For Main/Left Spindle	○
54		TSA For Sub/Right Spindle	○
55		Work & Tool Counter	○
56		Tool Setter Extension For Special Chuck	○
57		Main/Left Spindle Air Curtain	○
58		Sub/Right Spindle Air Curtain	○
59		MQL System	○
60		Chuck Pressure Switch	○

＊For further details of the range of options, please contact.

Optimal Support System of Automatic Operation `option`

Parts unloader & conveyor

Parts unloader system built inside the machine can receive workpieces from both spindles. Automated operation is realized perfectly when the system is coupled with bar feeder system.

Max. work diameter	Ø81 mm (3.2 inch)
Max. work length	160 mm (6.3 inch)
Max. work weight	4kg (8.8 lb)
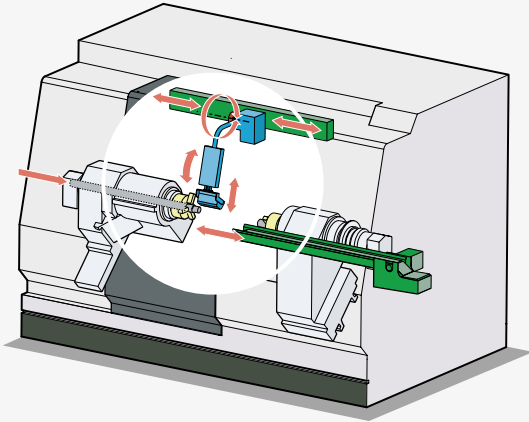
Bar feeder system

Automated bar working is possible by bar feeder system. When parts unloader system is added, its value of use will be in the best.

Max. Bar Working dia

ø81 mm (3.2 inch)

* Depending on the chuck and cylinder spec. used in the machine, the bar working dia. can be reduced.

Peripheral equipments

Optional devices `option`

COLLET CHUCK

Auto tool pre-setter

Coolant blower

ID/OD Special Holder
(Each turret 12ea/Tool 24ea)

Milling Special Holder
(Each turret 12ea/Tool 24ea)

Work measurement

Quick change tooling(CAPTO)

* Can be limited depends on holder position

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
• Ergonimic 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.

Real time custom macro function `option`

During operation of the parts unloader of the right spindle, this function allows the lower turret to conduct the cutting operation for the left spindle. This function also further improves the productivity.

Upper turret
Left spindle
Right spindle
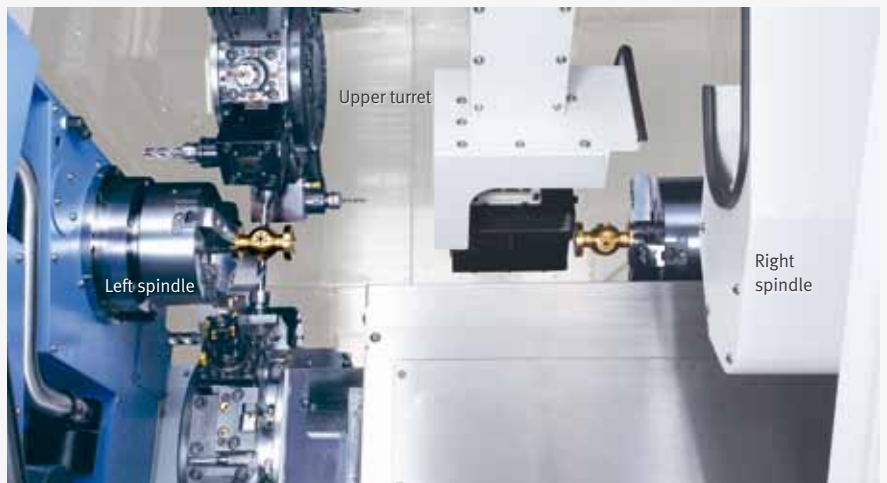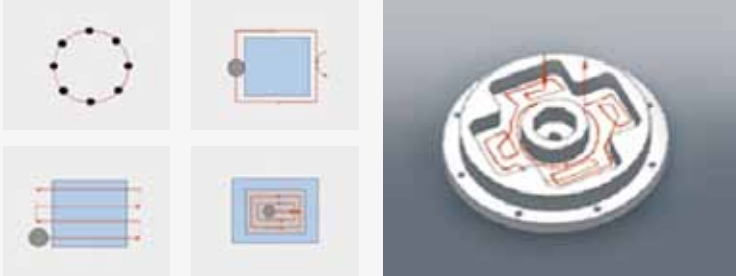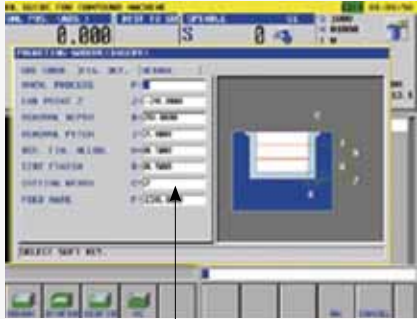
EZ-Guide i

Using the DOOSAN EZ-Guide i, users can create a cutting program for any desired shape, including patterns, by entering figures only.

Example programming

Cutting shape

EZ-Guide i screen

Enter the dimensions
of the shape.

Automatic creation of cutting program

```
O7000 (SAMPLE PROGRAM) ;
...
M3 S1500 ;
G0 X50. Y125. ;
G0 Z30. ;
G1040 T0.5 J3. H0.2 K0.5 ··· ;
G1020 H120. V50. U37. W68. ··· ;
G0 Z80. ;
M5 ;
```

A cutting program is automatically
created with the entered values.

Easy Operation Package

Doosan's Easy Operation Package (EOP) supports the user with functions relating to tool data, error diagnostics, set up and machine monitoring.

Tool Load Monitoring Function

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

Tool monitoring screen

Convenience of Maintenance and Service

The condition and service procedures of the sensors are provided for easy maintenance and servicing of major units.

Turret maintenance and service screen

Product Overview

Basic Information

Basic Structure
Line-up /
Processing

**Detailed
Information**

Options
Applications
Capacity Diagram
Specifications

Customer Support
Service

Spindle Power-Torque Diagram

PUMA TT2500MS / SY

Max. spindle speed : 3500 r/min
Max. power : 26 kW (34.9 Hp)
　　　　　　　(Built-in)
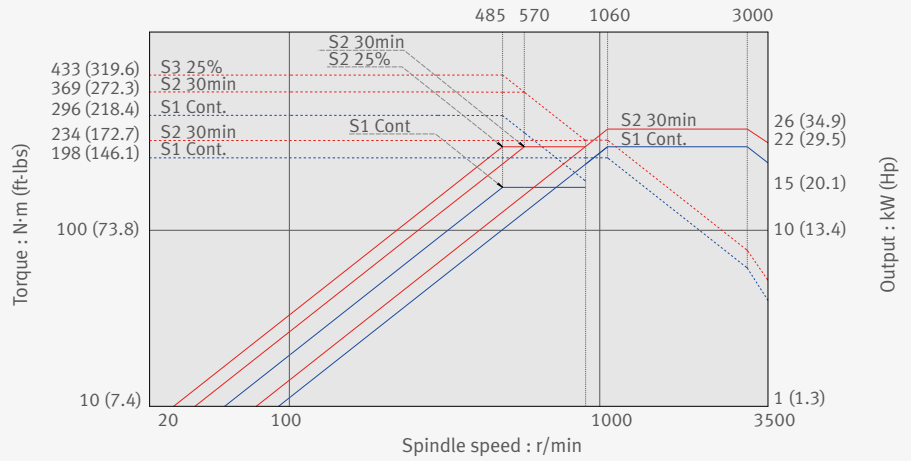
Rotary tool spindle

PUMA TT2500MS / SY

Max. spindle speed : 5000 r/min
Max. power : 5.5/1.5 kW
　　　　　　　(7.4/2.0 Hp) (15min/Cont.)
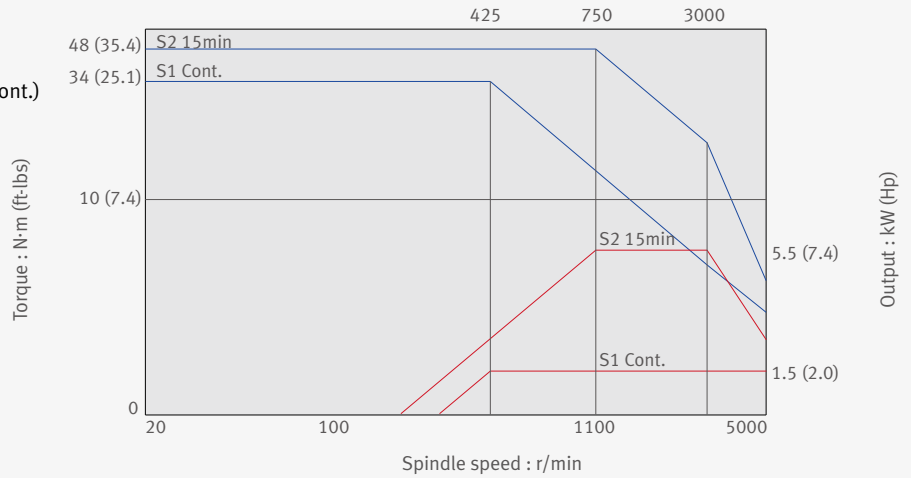
PUMA TT2500MS / SY option

Max. spindle speed : 5000 r/min
Max. power : 7.5/1.5 kW
　　　　　　　(10.1/2.0 Hp) (5min/Cont.)
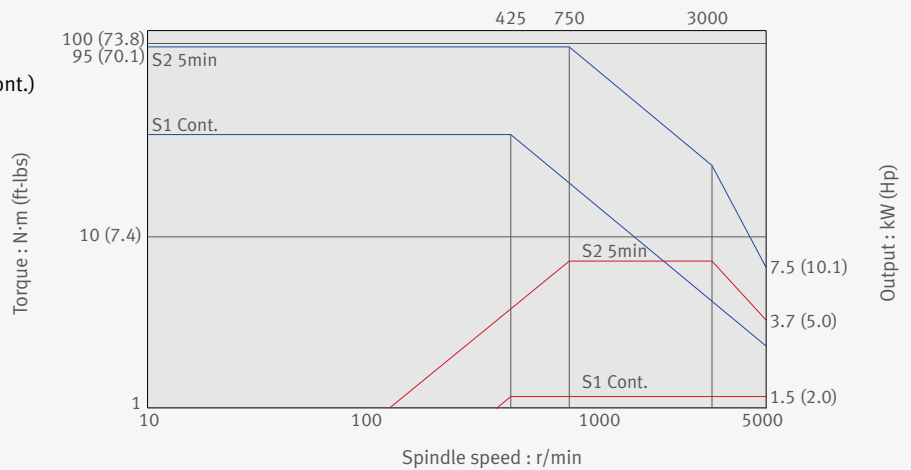
External Dimensions
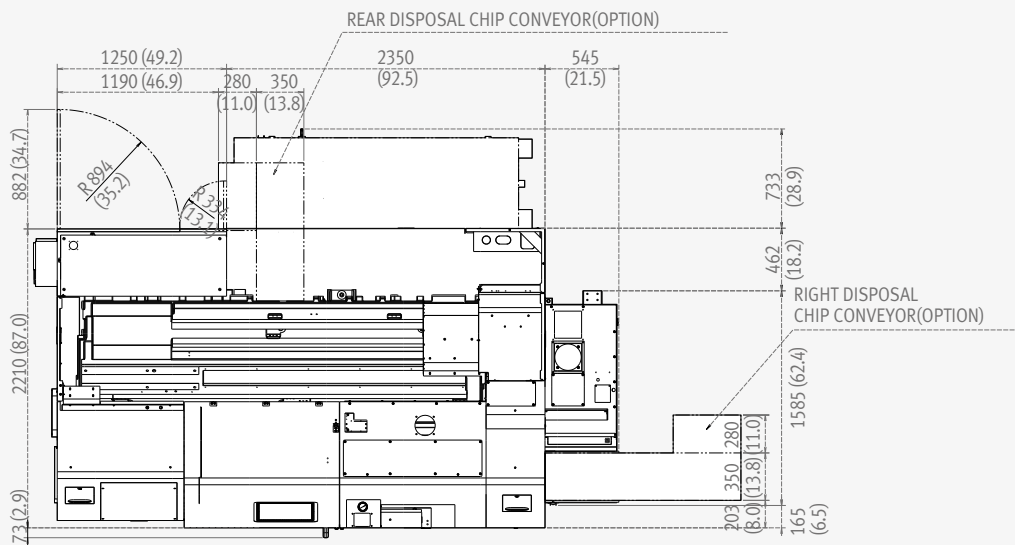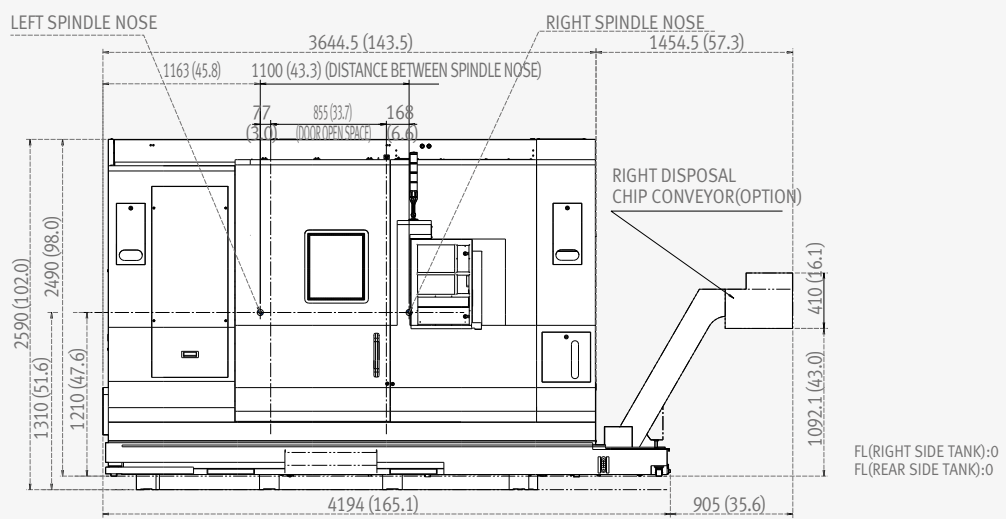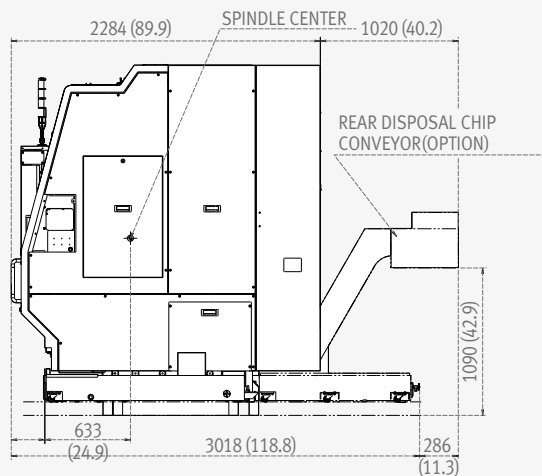
Top View

REAR DISPOSAL CHIP CONVEYOR(OPTION)

1250 (49.2)
1190 (46.9)
280 (11.0)
350 (13.8)
2350 (92.5)
545 (21.5)

882 (34.7)
R 894 (35.2)

733 (28.9)
462 (18.2)

RIGHT DISPOSAL CHIP CONVEYOR(OPTION)

2210 (87.0)
1585 (62.4)

73 (2.9)

350 (13.8)
280 (11.0)
203 (8.0)
165 (6.5)

Front View

LEFT SPINDLE NOSE
RIGHT SPINDLE NOSE

3644.5 (143.5)
1454.5 (57.3)

1163 (45.8)
1100 (43.3) (DISTANCE BETWEEN SPINDLE NOSE)

77 (3.0)
855 (33.7) (DOOR OPEN SPACE)
168 (6.6)

RIGHT DISPOSAL CHIP CONVEYOR(OPTION)

2590 (102.0)
2490 (98.0)
1310 (51.6)
1210 (47.6)

410 (16.1)
1092.1 (43.0)

4194 (165.1)
905 (35.6)

FL(RIGHT SIDE TANK):0
FL(REAR SIDE TANK):0

Side View

SPINDLE CENTER

2284 (89.9)
1020 (40.2)

REAR DISPOSAL CHIP CONVEYOR(OPTION)

1090 (42.9)

633 (24.9)
3018 (118.8)
286 (11.3)

Product Overview

Basic Information

Basic Structure
Line-up /
Processing

**Detailed
Information**

Options
Applications
Capacity Diagram
Specifications

Customer Support
Service

Tooling System

PUMA TT2500 MS / SY

Unit : mm (inch)

Standard

■: MS/SY series

OD, FACE, CUT-OFF

TURNING
TOOL

OD TOOL HOLDER (6)

OD TOOL(ER25)

**DOUBLE OD TOOL
HOLDER** (2)

**FACE TOOL
HOLDER** (2)

**CUT-OFF TOOL
HOLDER** (1)

CUTTING TOOL(ER25)

ID HOLDER

ID TOOL HOLDER (9)

BORING SLEEVES (2)
ø10 - H40   ø12 - H40
ø16 - H40   ø20 - H40
ø25 - H40   ø32 - H40

BORING BAR

U-DRILL SLEEVES (2)
ø20 - H40
ø25 - H40
ø32 - H40

U-DRILL

DRILL SOCKET
MT NO.1
MT NO.2
MT NO.3

DRILL

**HOLDER COVER
FOR U-DRILL** (2)

**12st UPPER TURRET
BMT 65P**

**12st LOWER TURRET
BMT 65P**

ROTARY TOOL

**STRAIGHT MILLING
HEAD FOR SIDE CUTTING** (2)

COLLET ADAPTER (1)

MILLING COLLET (ER32)
(ø3,4,5,6,7,8,9,10
11,12,13,14,15,16
17,18,19,20)

**ANGULAR MILLING HEAD
FOR FACE CUTTING** (2)

**MILLING ARBOR
ADAPTER** (1)

PLUG

DUMMY PLUG

**WELDON ADAPTER
(ID20)** (1)

Tool Interference Diagram

PUMA TT2500 MS / SY
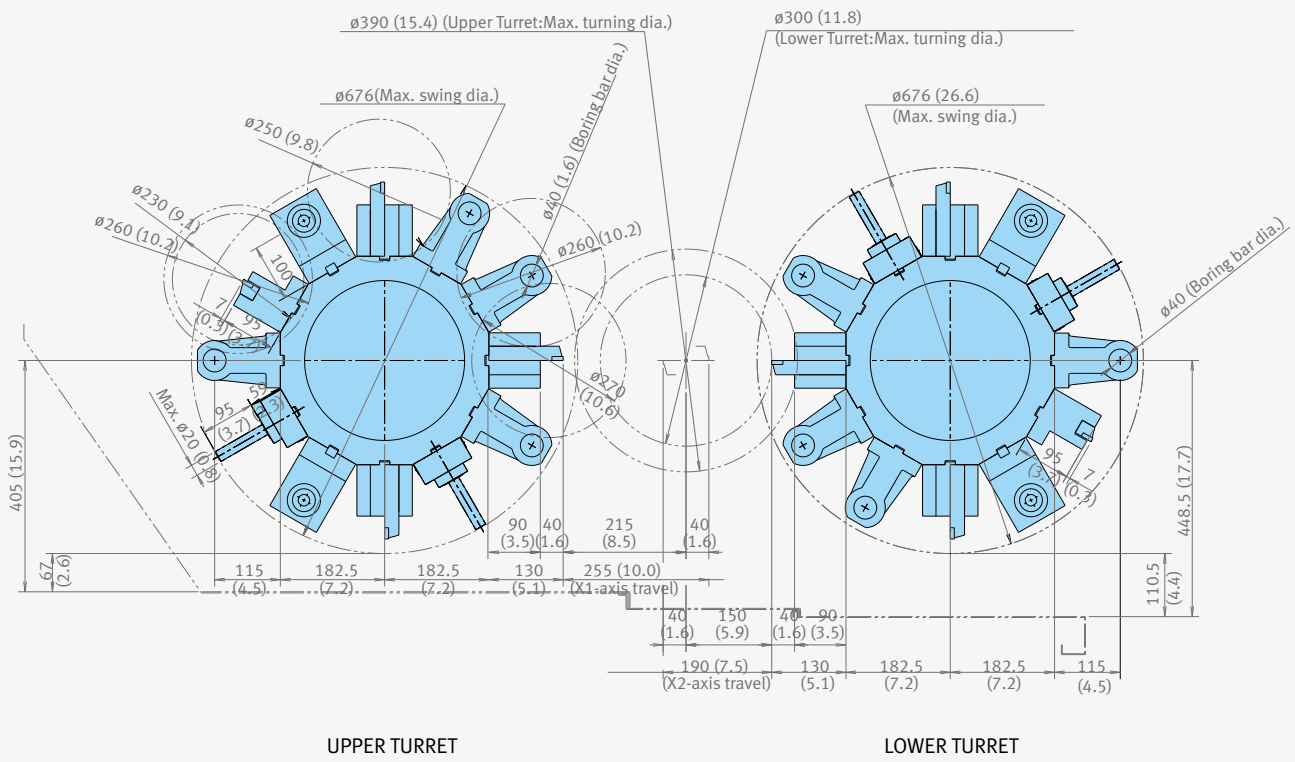
UPPER TURRET

LOWER TURRET

Working Range Diagram

PUMA TT2500 MS / SY

Unit : mm (inch)

Single OD Tool holder
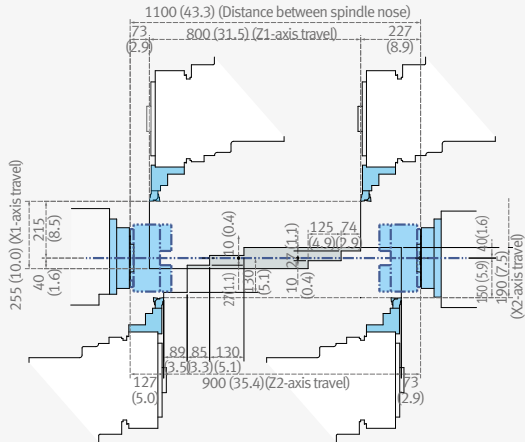
Double OD Tool holder
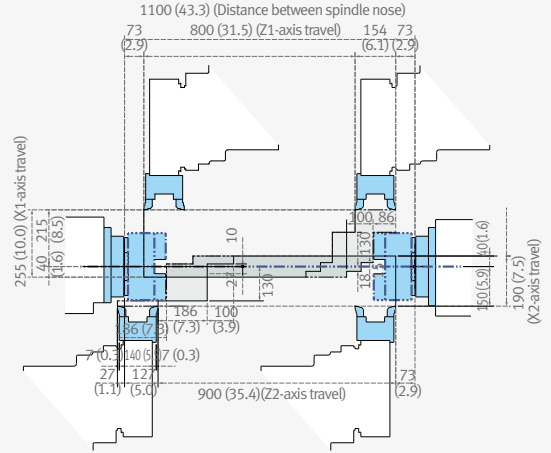
Single ID Tool holder

Angular milling head
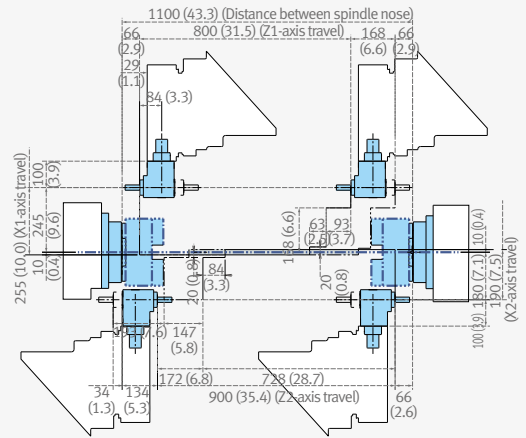
Straight milling head
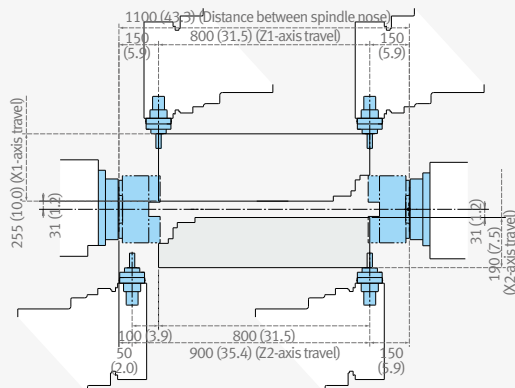
Machine Specifications

PUMA TT2500 series

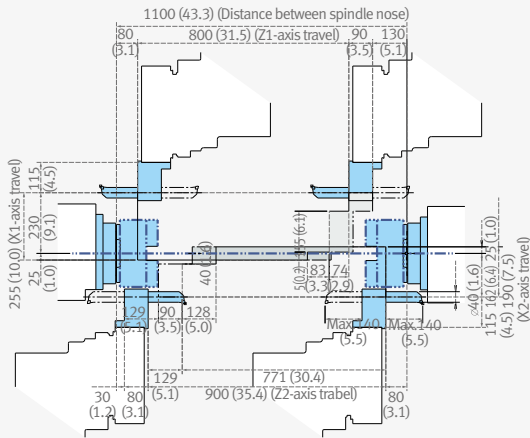| Description			Unit	PUMA TT2500MS	PUMA TT2500SY
Capacity	Swing over bed		mm (inch)	800 (31.5)	
	Swing over saddle		mm (inch)	620 (24.4)	
	Max. turning diameter	On upper turret	mm (inch)	390 (15.4)	
		On lower turret	mm (inch)	300 (11.8)	
	Recommended turning diameter		mm (inch)	255 (10.0)	
	Max. turning length		mm (inch)	350 (13.8)	
	Bar working diameter		mm (inch)	81 (3.2)	
Spindle (Left/Right)	Spindle speed		r/min	3500	
	Spindle nose		ASA	A2-8	
	Spindle bearing diameter (front)		mm (inch)	130 (5.1)	
	Spindle through hole diameter		mm (inch)	Letf : 91 (3.58) / Right : 86 (3.4)	
	C1-axis minimum indexing increment		deg	0.001	
Travels	X1-axis		mm (inch)	255 (10.0)	
	Z1-axis		mm (inch)	800 (31.5)	
	A-axis		mm (inch)	810 (31.9)	
	X2-axis		mm (inch)	190 (7.5)	
	Z2-axis		mm (inch)	900 (35.4)	
	C1, C2-axis		deg	360	
	Y-axis		mm (inch)	-	120 (±60) (4.7 (±2.4))
Rapid traverse rate	X1, 2-axis		m/min (ipm)	20 (787.4)	
	Z1, 2-axis		m/min (ipm)	24 (944.9)	
	A-axis		m/min (ipm)	24 (944.9)	
	C1, C2-axis		r/min	-	200
	Y-axis		m/min (ipm)	-	75 (2952.8)
Turret (Upper/Lower)	Number of tool stations		ea	12	
	OD tool size		mm (inch)	25 x 25 (1.0 x 1.0)	
	Max. boring bar size		mm (inch)	Ø40 (Ø1.6)	
	Turret indexing time	1 station swivel	sec	0.2	
	Max. rotary tool speed		r/min	5000	
Motor	Spindle motor power (Left/Right)		kW (Hp)	26 / 22 (34.9 / 29.5) (30min/Cont.)	
	Servo motor power	X1-axis	kW (Hp)	4 (5.4)	
		X2-axis	kW (Hp)	3 (4.0)	
		Z1, 2-axis	kW (Hp)	4 (5.4)	
		A-axis	kW (Hp)	4 (5.4)	
		Y-axis	kW (Hp)	-	3 (4.0)
	Coolant pump motor power		kW (Hp)	0.4 (0.5)	
Power source	Required power capacity		kVA	95.77	
Machine Dimensions	Machine size	Floor space	mm (inch)	4050 x 2210 (159.4 x 87.0)	
		Height	mm (inch)	2480 (97.6)	
	Machine weight (Net)		kg (lb)	12700 (27998.3)	
Control	CNC system			DOOSAN Fanuc i Plus {Fanuc 31i} *	

* { } : option

NC Unit Specifications

FANUC

● Standard ○ Optional X Not applicable

NO.	Division	Item	Spec.	DOOSAN Fanuc i Plus		Fanuc 31i	
				MS	SY	MS	SY
1	Controlled axis	Control paths		2 Path	2 Path	2 Path	2 Path
2		Controlled axes		7 (X1,Z1, C1,X2, Z2C2,A)	8 (X1, Z1, C1, Y, X2, Z2, C2, A)	7 (X1, Z1, C1, X2, Z2, C2, A)	8 (X1, Z1, C1, Y, X2, Z2, C2, A)
3		Simultaneously controlled axes		4 axes	4 axes	4 axes	4 axes
4		Axis control by PMC		●	●	●	●
5		Cs contouring control		●	●	●	●
6		Synchronous/Composite control (C1 & C2 Synchro Control)		●	●	●	●
7		Arbitrary angular axis control		X	●	X	●
8		Torque control	Included in axis control by PMC	●	●	●	●
9		Increment system A,B	0.001 mm, 0.001 deg, 0.0001 inch	●	●	●	●
10		HRV2 control		●	●	●	●
11		Inch/metric conversion		●	●	●	●
12		Stored limit check before move		●	●	○	○
13		Chuck and tail stock barrier		●	●	○	○
14		Chamfering on/off		●	●	●	●
15		Interference check for rotary area		X	X	●	●
16		Unexpected disturbance torque		●	●	●	●
17		detection function		●	●	●	●
18	Operation	Tool retract and recover		○	○	○	○
19		Dry run		●	●	●	●
20		Single block		●	●	●	●
21		Handle interruption		○	○	○	○
22		Incremental feed	x1,x10,x100	●	●	●	●
23		Manual handle retrace		○	○	○	○
24		Active block cancel		○	○	○	○
25	Interpolation functions	Nano interpolation		●	●	●	●
26		Linear interpolation		●	●	●	●
27		Circular interpolation	G02	●	●	●	●
28		Polar coordinate interpolation		●	●	●	●
29		Cylindrical interpolation		●	●	●	●
30		Helical interpolation		●	●	●	●
31		Thread cutting, synchronous cutting		●	●	●	●
32		Multi threading		●	●	●	●
33		Thread cutting retract		●	●	●	●
34		Continuous threading		●	●	●	●
35		Variable lead thread cutting		●	●	○	○
36		Circular thread cutting		○	○	○	○
37		Polygon machining with two spindles		●	●	●	●
36		High-speed skip	Input signal is 8 points.	○	○	○	○
37		3rd/4th reference position return		●	●	○	○
38		Balanced cutting	Only for more than 2 path control	●	●	●	●
39		General purpose retract		●	●	○	○
40	Feed function	Bell-shaped acceleration/ deceleration after cutting feed interpolation		●	●	●	●
41		Override cancel		●	●	●	●
42		AI contour control I	G5.1 Q_, 40 Blocks	●	●	●	●
43		AI contour control II	G5.1 Q_, 200 Blocks	○	○	○	○
44		Rapid traverse block overlap		●	●	●	●
45	Program input	Optional block skip	9 pieces	●	●	○	○
46		Absolute/incremental programming	Combined use in the same block	●	●	●	●
47		Diameter/Radius programming	X-axis	●	●	●	●
48		Automatic coordinate system setting		●	●	●	●
49		Workpiece coordinate system	G52 - G59	●	●	●	●
50		Workpiece coordinate system preset		●	●	○	○
51		Addition of workpiece coordinate system	48 pairs	X	X	○	○
52		Addition of workpiece coordinate system	300 pairs	X	X	○	○
53		Direct drawing dimension programming		●	●	●	●

NO.	Division	Item	Spec.	DOOSAN Fanuc i Plus		Fanuc 31i	
				MS	SY	S	MS
54	Program input	Chamfering/Corner R		●	●	○	○
55		Custom macro		●	●	●	●
56		Addition of custom macro common variables	#100 - #199, #500 - #999	●	●	●	●
57		Custom macro common variables between each path	Only for more than 2 path control. Included in Custom macro.	●	●	●	●
58		Interruption type custom macro		●	●	○	○
59		Canned cycle		●	●	●	●
60		Multiple repetitive cycles	G70~G76	●	●	●	●
61		Multiple repetitive cycles II	Pocket profile	●	●	●	●
62		Canned cycle for drilling		●	●	●	●
63		Automatic corner override		X	X	○	○
64		Custom software (Total amount of each path)	12MByte	●	●	●	●
65		Coordinate system shift		●	●	●	●
66		Direct input of coordinate system shift		●	●	●	●
67		Real time custom macro		○	○	○	○
68		Pattern data input		●	●	○	○
69	Operation Guidance Function	EZ Guidei (Conversational Programming Solution)		●[1]	●[1]	●	●
70		iHMI with Machining Cycle (Conversational Programming Solution)		○[2]	○[2]	X	X
71		Easy Operation Package		●	●	●	●
72	Auxiliary/ Spindle speed function	Waiting function	Only for more than 2 path control	●	●	●	●
73		Constant surface speed control		●	●	●	●
74		Spindle override	0 - 150%	●	●	●	●
75		Spindle orientation		●	●	●	●
76		Spindle synchronous control		●	●	●	●
80		Rigid tap		●	●	●	●
81		Arbitrary speed threading		○	○	○	○
82	Tool function/ Tool compensation	Tool offset pairs	99-pairs	X	X	●	●
83			126-pairs	●	●	○	○
84			200-pairs	○	○	○	○
85			400-pairs	X	X	○	○
86			499-pairs	X	X	○	○
87			999-pairs	X	X	○	○
88			2000-pairs	X	X	○	○
89		Common offset memory between each path	Only for more than 2 path control	●	●	●	●
90		Tool offset		●	●	●	●
91		Tool radius/Tool nose radius compensation		●	●	●	●
92		Tool geometry/wear compensation		●	●	●	●
93		Automatic tool offset	G36/G37	●	●	●	●
94		Direct input of tool offset value measured		●	●	●	●
95		Tool life management		●	●	●	●
96	Accuracy compensation function	Backlash compensation for each rapid traverse and cutting feed		●	●	●	●
97		Stored pitch error compensation		●	●	●	●
98	Editing operation	Part program storage size & Number of registerable programs	640M(256KB)_500 programs	X	X	○	○
99			1280M(512KB)_1000 programs	X	X	●	●
100			2560M(1MB)_1000 programs	X	X	○	○
101			5120M(2MB)_1000 programs	●	●	○	○
102			10240M(4MB)_1000 programs	X	X	○	○
103			20480M(8MB)_1000 programs	X	X	○	○
104			2560M(1MB)_2000 programs	X	X	○	○
105			5120M(2MB)_4000 programs	X	X	○	○
106			10240M(4MB)_4000 programs	X	X	○	○
107			20480M(8MB)_4000 programs	X	X	○	○
108		Program protect		●	●	●	●
109		Password function		●	●	●	●
110		Playback		●	●	○	○
111		Memory card program edit & operation	Max 63 programs	●	●	●	●
112	Data input / output	Fast data server		○	○	○	○
113		External data input		●	●	●	●
114		Memory card input/output		●	●	●	●
115		USB memory input/output		●	●	●	●
116		Automatic data backup		●	●	●	●
117	Interface function	Embedded Ethernet		●	●	●	●
118		Fast Ethernet		○	○	○	○
119	Others	Display unit	15" color LCD	●	●	●	●
120			15" color LCD with Touch Panel	○	○	X	X
121		Machine alarm diagnosis		●	●	X	X
122		CNC screen display		●	●	●	●
123		CNC screen dual display function		●	●	●	●
124	Robot interface	Robot interface with PMC I/O module		○	○	○	○
125		Robot interface with PROFIBUS-DP		○	○	○	○

1) Only with 15" LCD standard
2) 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.

AMERICA
EUROPE
CHINA (Shanghai)
CHINA (Yantai)
Head Office
Changwon Factory
INDIA

Global Sales and Service Support Network

Corporations	Dealer Networks	Technical Centers	Service Post	Factories
		Technical Center: Sales Support, Service Support, Parts Support		
4	167	51	200	3

Doosan Machine Tools 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

PUMA TT2500 series

Description	Unit	PUMA TT2500S / MS / SY
Max. turning diameter	mm (inch)	Upper turret:390 (15.4) / Lower turret: 300 (11.8)
Max. turning length	mm (inch)	350 (13.8)
Bar working diameter	mm (inch)	81 (3.2)
Chuck size	inch	10
Spindle speed	r/min	3500
Spindle motor power (Left / Right)	kW (Hp)	26/22 (34.9/29.5) (30min/Cont.)

Doosan Machine Tools

www.doosanmachinetools.com

f ▶ ⊙ in

Head Office
22F T 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 Europe
Emdener Strasse 24, D-41540 Dormagen,
Germany
Tel +49-2133-5067-100
Fax +49-2133-5067-111

Doosan Machine Tools India
No.82, Jakkuar Village, Yelahanka Hobil,
Bangalore-560064
Tel + 91-80-2205-6900
E-mail india@doosanmt.com

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.

* Doosan Machine Tools Co., Ltd. is a subsidiary of MBK Partners. The trademark **DOOSAN** is used under a licensing agreement with Doosan Corporation, the registered trademark holder.
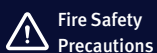
⚠ **Fire Safety Precautions** | There is a high risk or fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting use coolants and modifying the machine without the consent of the manufacturer. Please check the SAFETY GUIDANCE carefully before using the machine.