DN SOLUTIONS

TWIN-SPINDLE, TWIN-TURRET TURNING CENTERS WITH Y-AXES

PUMA TT 1300·2100

PUMA TT 1300SY/SYY
PUMA TT 2100SYY

PUMA TT 1300·2100

The PUMA TT1300SY/SYY and TT2100SYY are 42-81mm (5-10 inch) bar capacity high productivity horizontal turning centers. They are equipped with twin opposed spindles and upper/lower turrets with Y-axis. The left and right spindles can process workpieces independently to achieve excellent productivity. The workpieces processed by the left and right spindles are discharged via an automatic system. The TT Series has become one of DN Solutions's bestselling products and is favored by customers all around the world.
The compact PUMA TT is packed with one-setup efficiency. Thanks to its 24 tool positions in the upper and lower turrets, you'll complete complicated parts that require plenty of tools in just one setup.

CONTENTS

DOUBLED PRODUCTIVITY

The left and right spindles and the upper and lower turrets operate independently to double the TT ’s productivity. Adding a lower Y-axis increased the productivity 20% more than having only upper Y-axis.

FLEXIBLE SIZING

The TT ’s 5-, 6-, 8- and 10-inch chucks and 42 to 81mm bar capacity ensure customers can select the ideal machine.

ADVANCED UNLOADER SYSTEM

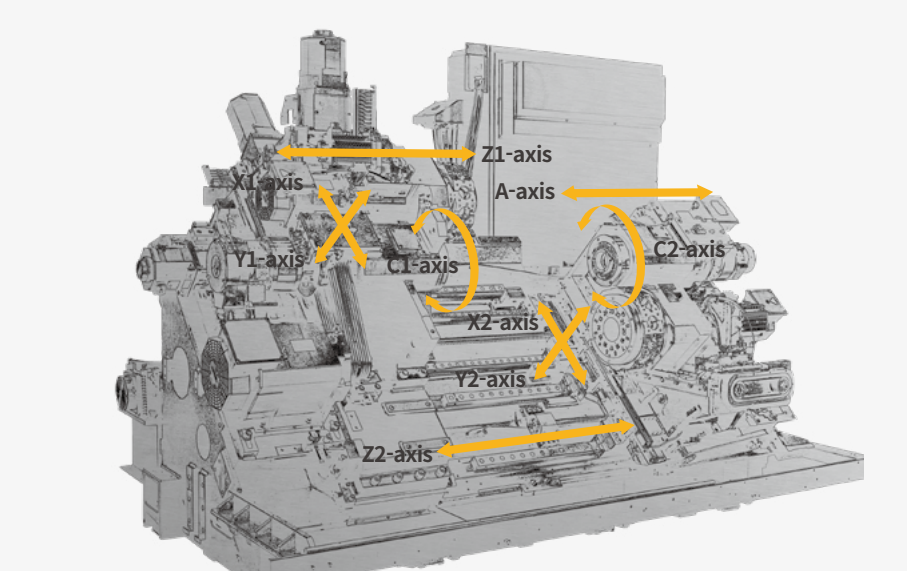
The left and right spindles are equipped with independent upgraded part catcher and unloader systems to provide a fully automated manufacturing system. The enhanced parts unloader system sports 33% more productivity than the previous model.

BASIC STRUCTURE

All axis in the TT are equipped with roller LM guide ways for increased rigidity and high speed, providing maximum productivity.

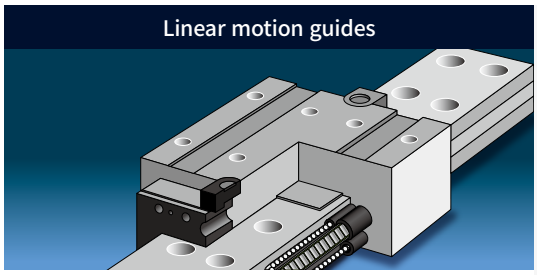
Feed axis construction

High productivity is achieved with a process-intensive structure comprising opposing types of spindles and upper and lower turrets.



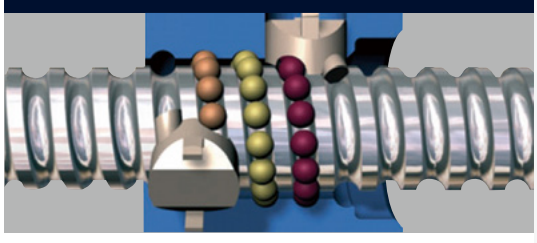
Description		Unit	PUMA TT1300SY / SYY	PUMA TT2100SYY
Travel distance	X1, X2 axis	mm (inch)	X1 : 135 (5.3)/X2 : 135 (5.3) (PUMA TT1300SYY) X1 : 135 (5.3)/X2 : 150 (5.9) (TT 1300SY)	X1 : 165 (6.5), X2: 165 (6.5)
	Z1, Z2 axis	mm (inch)	Z1 : 530 (20.9), Z2: 530(20.9)	Z1 : 700 (27.6), Z2: 700 (27.6)
	Y-axis	mm (inch)	80(±40) (3.1(±1.6))	100 (±50) (3.9 (±2.0))
	A-axis	mm (inch)	540 (21.3)	730 (28.7)
Rapid traverse rate	X1, X2 axis	m/min (ipm)	30 (1181.1)	
	Z1, Z2 axis	m/min (ipm)	40 (1574.8)	
	Y-axis	m/min (ipm)	15 (590.6)	
	A-axis	m/min (ipm)	40 (1574.8)	

Linear motion guides



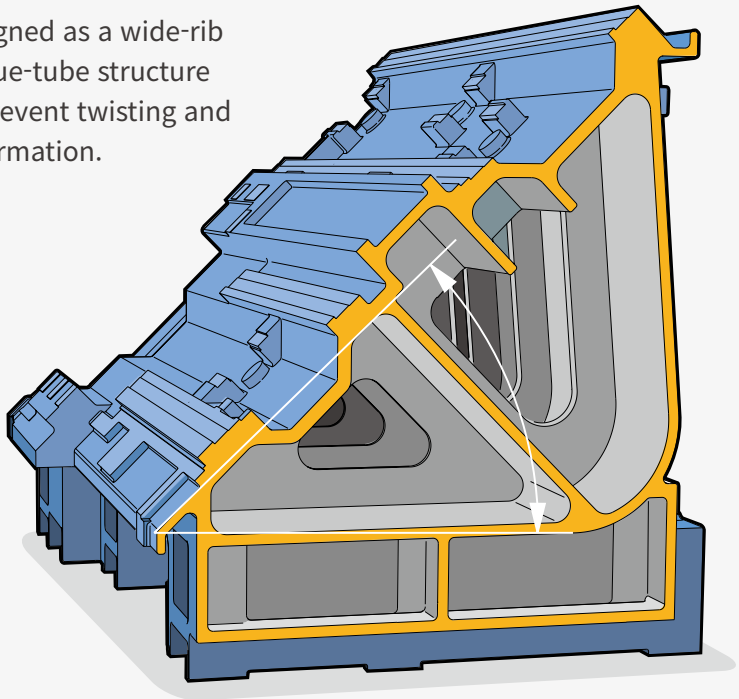
High rigidity and high speed structures with roller LM guides.

Ball screw



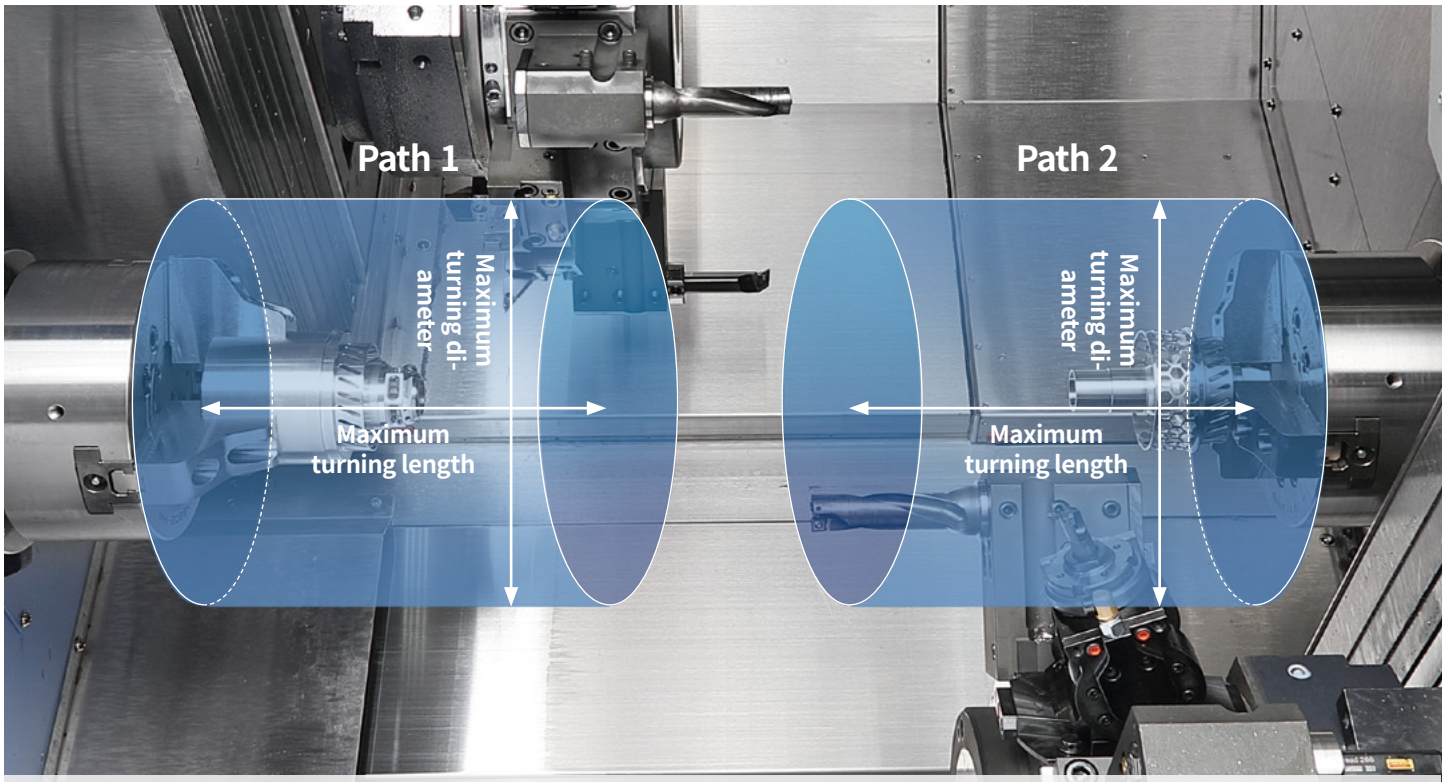
Temperature fluctuations on the travel system have been minimized through the use of low friction ball screws.

Designed as a wide-rib torque-tube structure to prevent twisting and deformation.



FLEXIBLE MACHINING

PUMA TT1300SYY·TT2100SYY Maximum turning capabilities



Max turning diameter / path length

PUMA TT 1300SY/SYY
Ø175/120 mm (Ø6.9/4.7 inch)

PUMA TT 2100SYY
Ø230/230 mm (Ø9.1/9.1 inch)

Y-axis milling

A wide variety of multi-axis milling cycles can be achieved using the Y-axis.

Y1/Y2-axis stroke

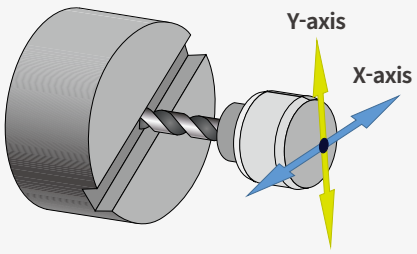
PUMA TT 1300SY/SYY
80(±40) mm (3.1 (±1.6) inch)

PUMA TT 2100SYY
100(±50) mm (3.9 (±2.0) inch)

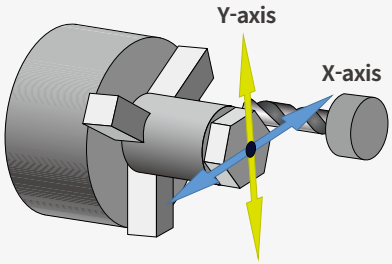
Y1/Y2- axis rapid traverse

15 m/min (590.6 ipm)

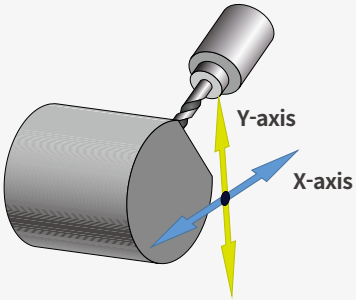
Groove finish cutting using the Y-axis



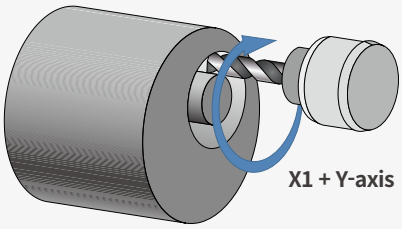
Multi-face cutting



Milling in an eccentric position



Y & X-axis circular interpolation



SPINDLE INFORMATION

Highly rigid, low vibration belt spindle design, applied taper rollers and two angular bearings enhance the reliability of the spindle. The best torque and power give the user the highest cutting performance possible.

Max spindle speed

PUMA TT 1300SY/SYY
6000 r/min

PUMA TT 2100SYY
5000 r/min

Max power

PUMA TT 1300SY/SYY
11/5.5 kW (14.8 / 7.4 Hp)

PUMA TT 1300SYYB
15/7.5 kW (20.1 / 10.1 Hp)

PUMA TT 2100SYY
25/15 kW (33.5 / 20.1 Hp)

PUMA TT 2100SYYB
22/18.5 kW (29.5/ 24.8 Hp)

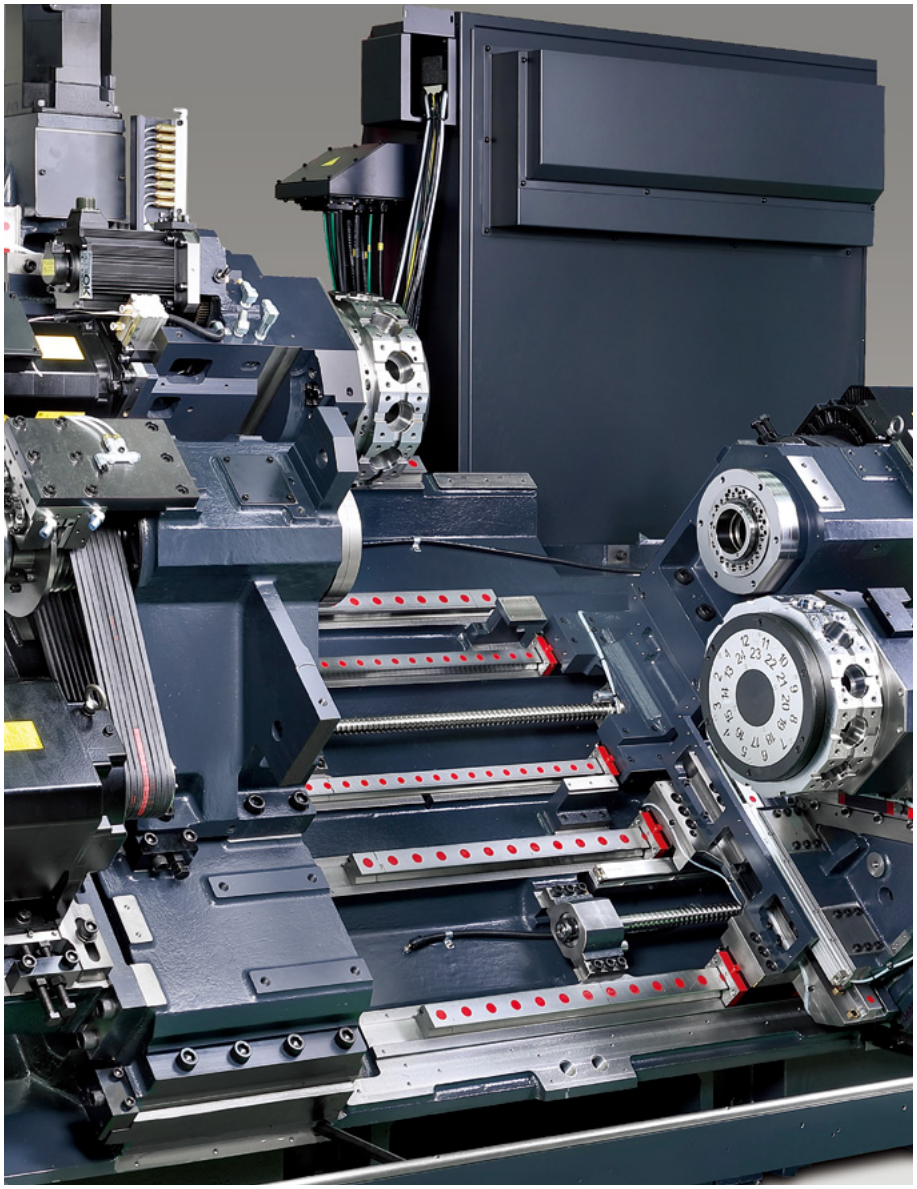
Max torque

PUMA TT 1300SY/SYY
93 N·m (68.6 ft-lbs)

PUMA TT 1300SYYB
116 N·m (85.6 ft-lbs)

PUMA TT 2100SYY
223 N·m (164.6 ft-lbs)

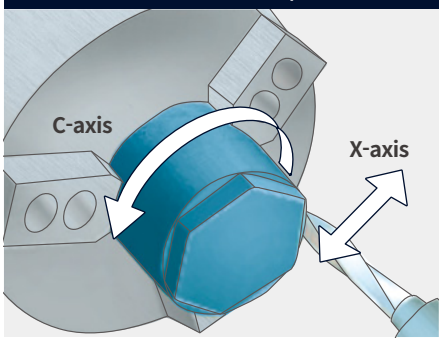
PUMA TT 2100SYYB
244 N·m (180.1 ft-lbs)



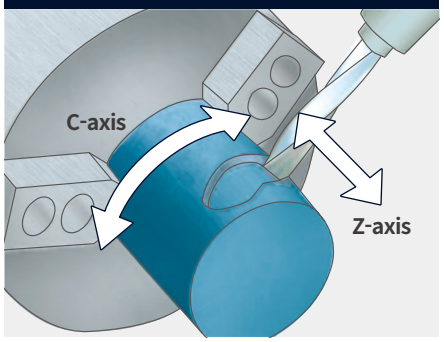
C-axis accuracy

The positioning and repeatability of the C-axis has been enhanced.

Polar coordinate interpolation



Cylindrical interpolation



TURRETS

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

Turret with upgraded speed and rigidity

The newly-designed turret has passed stricter speed and side loading tests. In addition, the cross-roller bearing reduces backlash and improves accuracy due to its improved rigidity. Indexing time has been reduced by 20- 30% compared with previous models.

Turret indexing time (1-face)

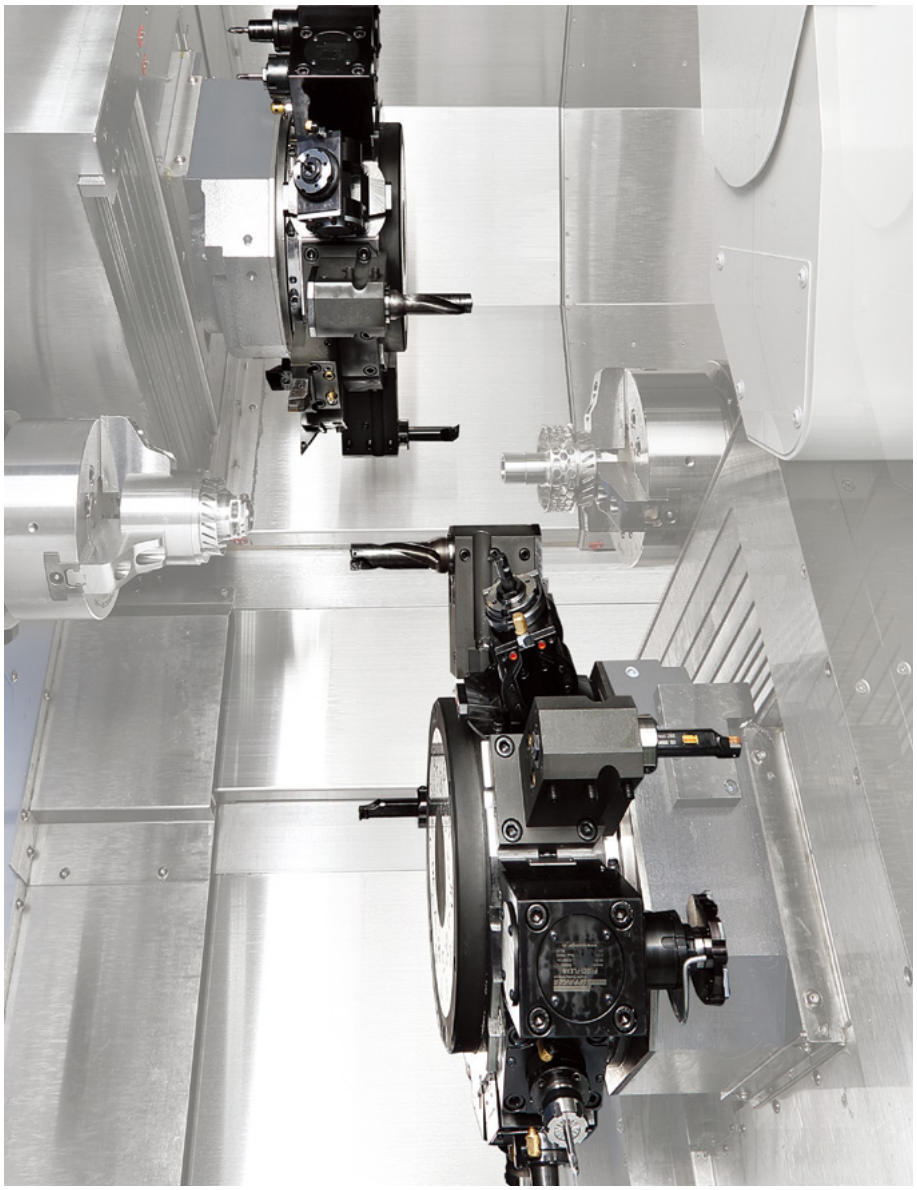
0.12 seconds

Number of tool stations
(same for upper and lower turrets)

12 station

Number of index positions
(same for upper and lower turrets)

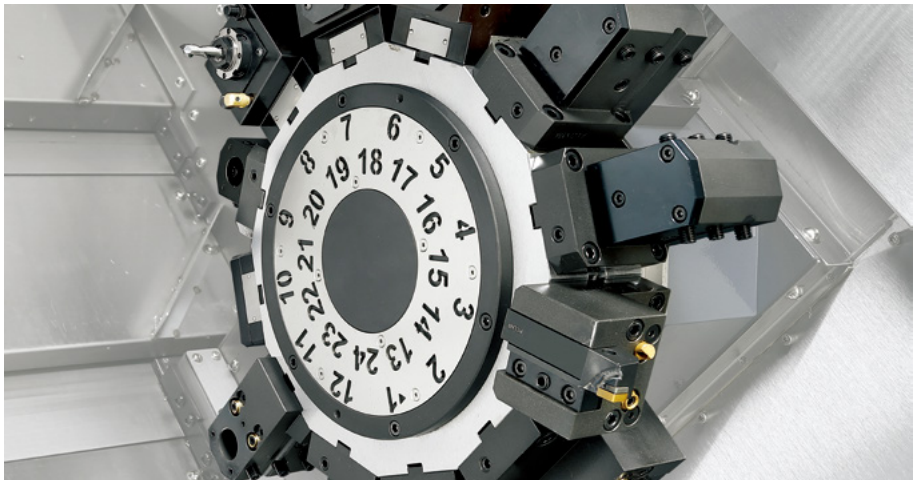
24 index position



Rotary tool structure is highly resistant to thermal displacement

The milling turret, including rotary tools, features a BMT design for higher rigidity. In addition, the minimization of thermal error due to oil and air lubrication of the rotary tools delivers class-leading milling, drilling and tapping performance.

- **Reduce non-cutting time by 10%**
- **Higher indexing speeds**
- **Improved accuracy**

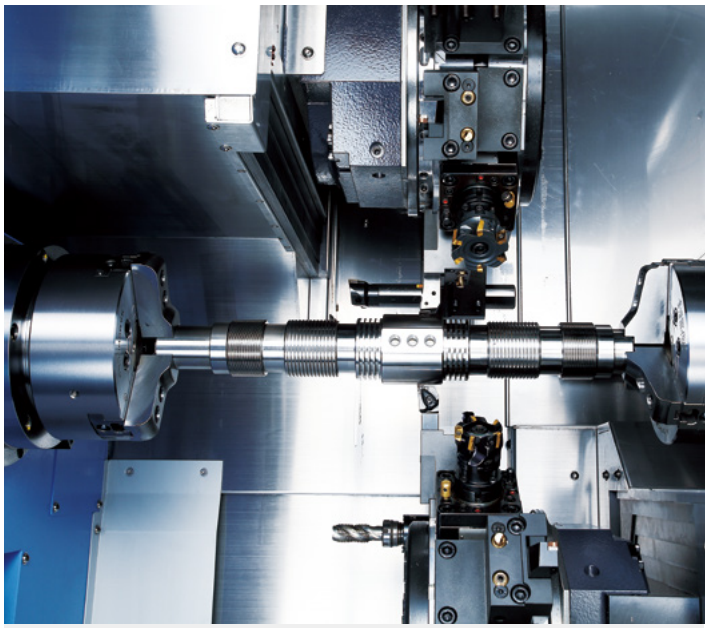


CUTTING CONCEPTS

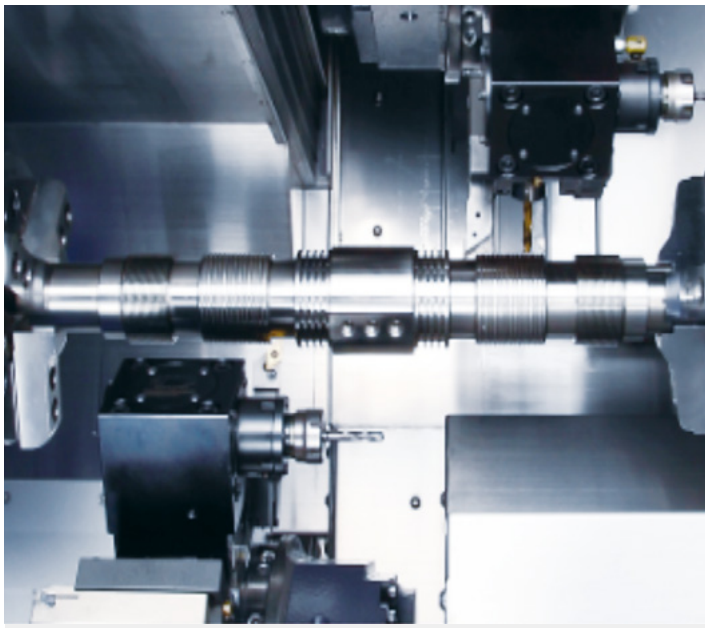
Multi-tasking with left and right spindles and upper and lower turrets optimizes productivity.

“LONG SHAFT MACHINING BY SYNCHRONISING THE ROTATION OF BOTH SPINDLES” CONCEPT

PUMA TT Series turning centers can double productivity when machining long workpieces through the synchronized control of the left and right spindles and using both the upper and lower turrets for simultaneous machining.



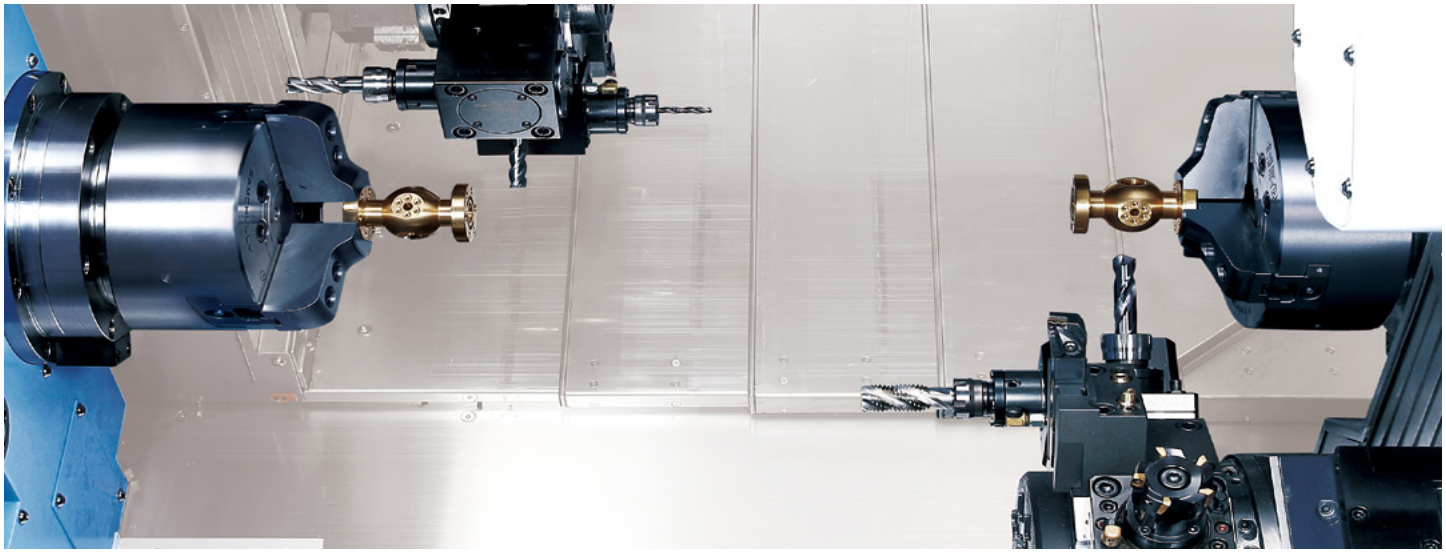
Turning at the same position is carried out using the upper and lower turrets simultaneously.



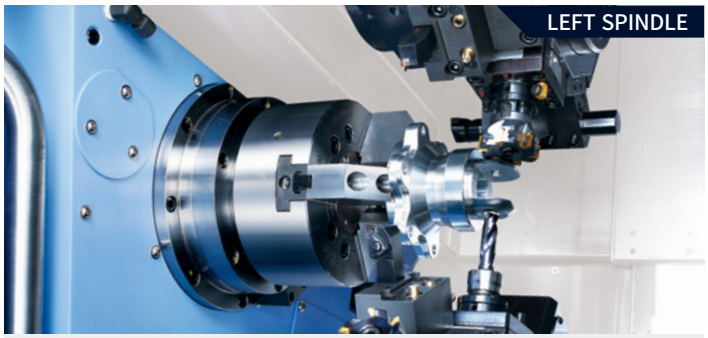
Different cutting processes can be carried out on a single workpiece using the upper and lower turrets simultaneously.

“ONE MACHINE, TWO PARTS” CONCEPT

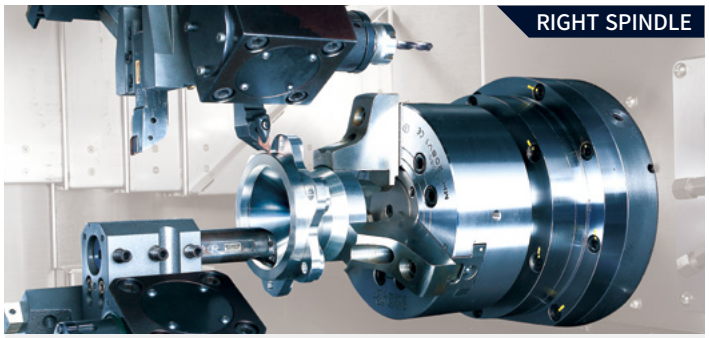
PUMA TT Series turning centers double productivity thanks to the independent, yet simultaneous, operation of the left and right spindles and the upper and lower turrets.



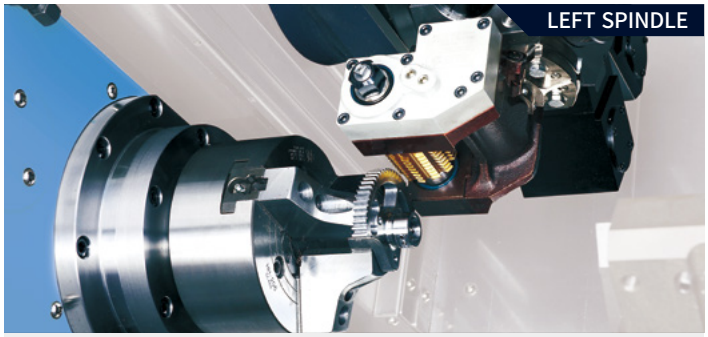
CUTTING CONCEPTS



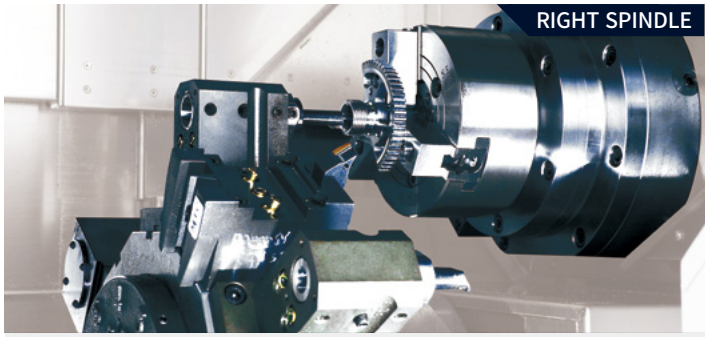
Upper and lower turret simultaneously machining with left spindle



Upper and lower turret simultaneously machining with right spindle



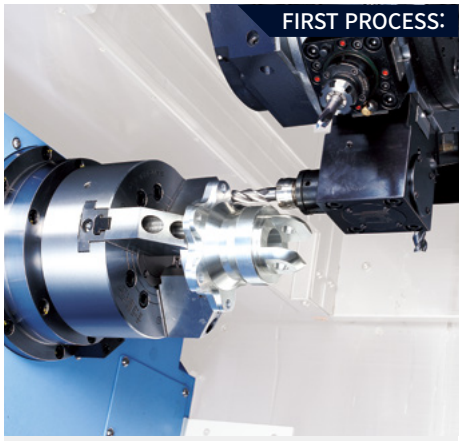
Gear hobbing and polygon turning



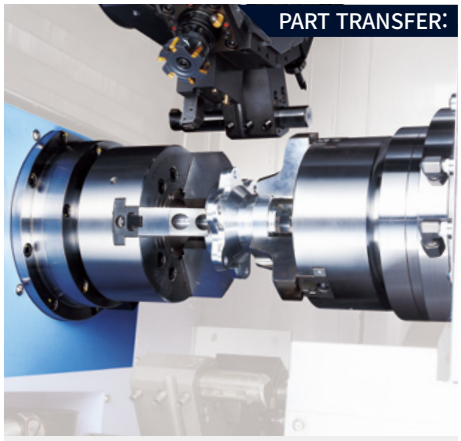
Internal slotting operation

"FIRST AND SECOND PROCESS SIMULTANEOUS MACHINING" CONCEPT

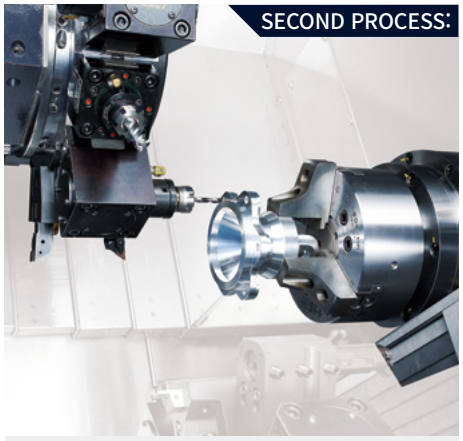
The PUMA TT can produce different milled features using its spindles. Example: bolt hole pattern using the right spindle to a keyway machined feature using the left spindle.



Cutting with the left spindle



Synchronized rotation and parts feed using the left and right spindles



Rear side cutting with the right spindle

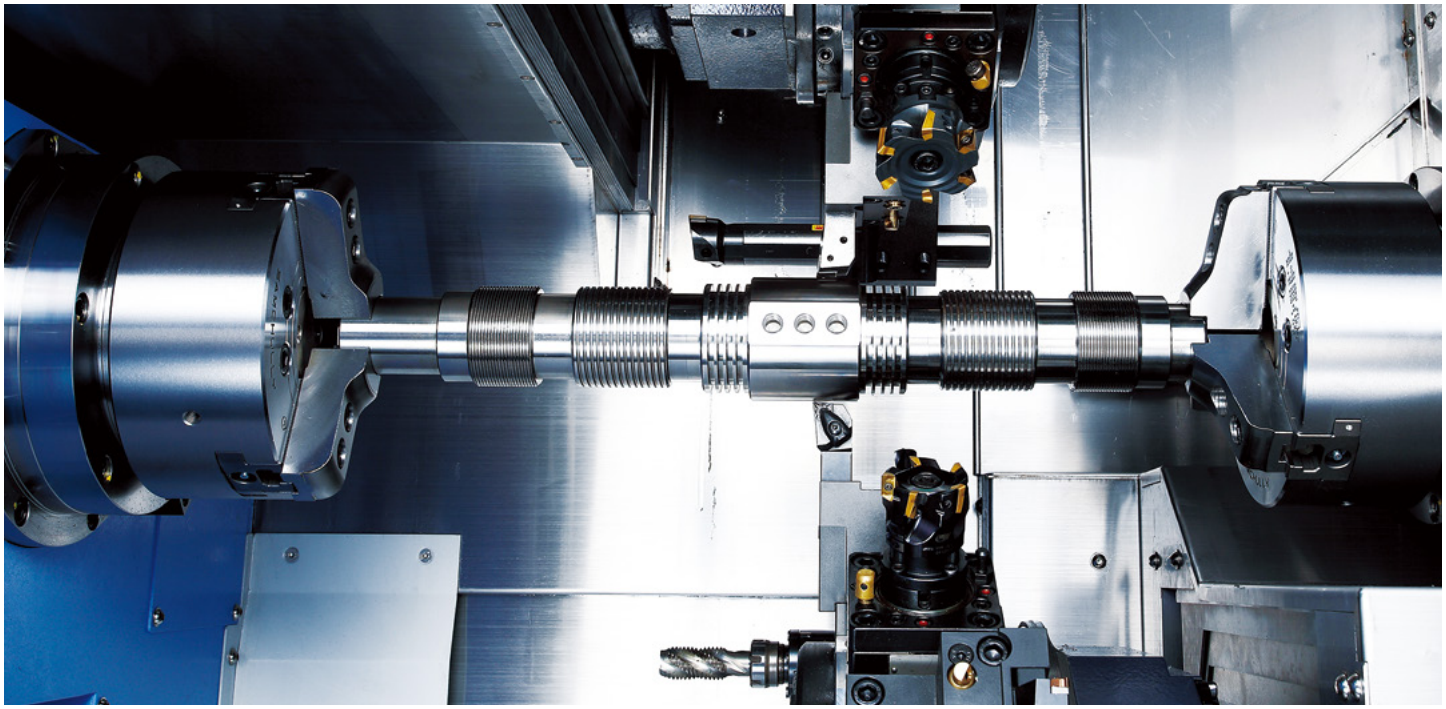
ONE MACHINE, TWO PROCESSES

With the adoption of two opposing spindles and upper/lower turrets, the PUMA TT Series can machine both first and second operations simultaneously. Furthermore, the axis travel system, which features high rigidity roller LM guideways and a fast feed rate of 40 m/min, provides speed with process reliability.

TWO OPPOSING SPINDLES AND UPPER AND LOWER TURRETS INSTALLED ON ONE MACHINE

DIVERSE LINE-UP WITH LARGE CAPABILITY

Rotary tools can be selected for milling, tapping and drilling, while the Y-axis can be used for cutting inclined or curved surfaces. This process-intensive turning center is capable of conducting multiple processes, further widening its potential and appeal.



STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

Description	Features	PUMA TT1300SY/SYY	PUMA TT1300SYB/SYYB	PUMA TT2100SYY	PUMA TT2100SYYB
Chuck (Left)	135 mm (5 inch)	●	X	X	X
	165 mm (6 inch / TT1300SYYB : 170 mm)	○	●	X	X
	210 mm (8 inch)	X	X	●	X
	254 mm (10 inch)	X	X	X	●
	None	○	○	○	○
Chuck (Right)	135 mm (5 inch)	●	●	X	X
	165 mm (6 inch)	○	○	X	X
	210 mm (8 inch)	X	X	●	●
	254 mm (10 inch)	X	X	X	X
	None	○	○	○	○
Jaws (Left / Right)	Soft jaws	●	●	●	●
	Hardened & ground hard jaws	○	○	○	○
Chucking option	Dual pressure chucking	○	○	○	○
	Chuck clamp confirmation	○	○	○	○
Tailstock	Tail center for turret	○	○	○	○
Coolant pump (60 / 50Hz)	4.5 Bar	●	●	●	●
	Power up(7/10/14.5/20 Bar)	○	○	○	○
Coolant options	Oil skimmer	○	○	○	○
	Coolant pressure switch	○	○	○	○
	Coolant level switch : Sensing level - low	○	○	○	○
	Cooling flow switch	○	○	○	○
	High coolant interface	○	○	○	○
	Chuck coolant (Left/Right)	○	○	○	○
	TSC for spindle (Left/Right)	○	○	○	○
	Coolant gun	○	○	○	○
Chip processing options	Chip conveyor_Side Type	○	○	○	○
	Chip conveyor_Rare Type	○	○	○	○
	Chip bucket	○	○	○	○
	Air blow (Left/Right)	○	○	○	○
	Mist collector	○	○	○	○
Precision enhanced option	Thermal compensation function (sensor type)	○	○	○	○
	Water soluble Coolant Chiller**	○	○	○	○
	Linear scale (X1,X2,Z1,Z2,Y1,Y2)	○	○	○	○
Measurement & automation	Tool setter(Automatic)	○	○	○	○
	Parts catcher and box	○	○	○	○
	Parts unloader and conveyor	○	○	○	○
	Work ejector	○	○	○	○
	Parts unloader operating while main spindle cutting(Real time customer macro)	○	○	○	○
	Auto door	○	○	○	○
	Cut-Off confirmation	○	○	○	○
	Work/Tool counter	○	○	○	○
	Robot interface (PMC I/O, Profibus)	○	○	○	○
	Bar feeder interface	○	○	○	○
	Bar puller	○	○	○	○
Optional devices	CBS II	○	○	○	○
	Tool load monitoring	○	○	○	○
	Signal tower	○	○	○	○
	Air gun	○	○	○	○
	Air conditioner for electric cabinet	○	○	○	○
	Light for electric cabinet	○	○	○	○
	Extra M-code (4ea)	○	○	○	○
	Auto power Off	○	○	○	○
	Quick change tooling(CAPTO)	○	○	○	○

※ Please contact your DN Solutions representative for detailed machine information.
** When using a semi-synthetic type or synthetic type, contact our sales representative or service center in advance.*
*** Technical consultation is mandatory for the chilling of non-water soluble coolant*

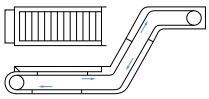
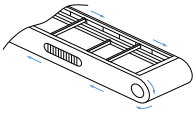
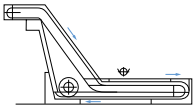
● *Standard* ○ *Optional* X *Not applicable*

Fire Safety Precautions | There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting the controlled and careful use of coolants and modifying the machine without the consent of the manufacturer. Always check the SAFETY GUIDELINES carefully before using the machine.

PERIPHERAL EQUIPMENT

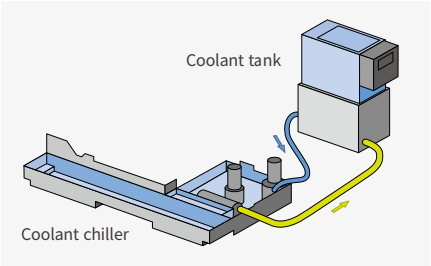
Chip conveyor (right side) OPTION

The chip conveyor with its stable design delivers excellent chip disposal, superior operation and maintenance convenience. Users can select the optimum type of conveyor that meets their specific machining and floor space requirements.

Name	Hinged belt	Magnetic scrapper	Drum filter (Single type)
Application	Steel	Cast steel, iron	Steel, cast, nonferrous metals
Features	• General use • Suitable for steel applications producing 30mm chips or longer	• Easy-to-understand manual • Chips are scraped up and discharged	• Suitable for long and short chips • Cooling water filtering function
Shape			

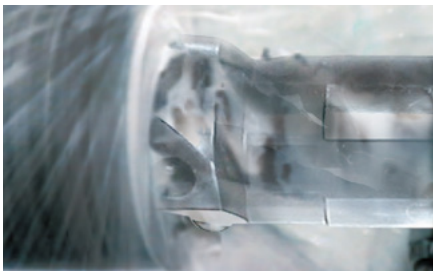
Coolant chiller (recommended) OPTION

Coolant chiller is highly recommended to prevent temperature rise and minimize thermal deformation, when using a water-insoluble coolant or high-pressure coolant system of which the power is over 1.5 kw.



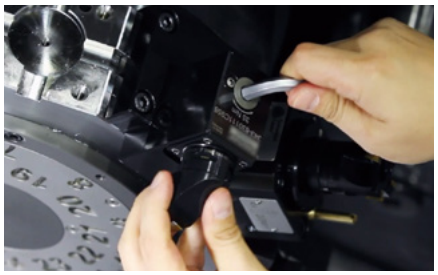
70 bar high pressure coolant OPTION

70 bar high pressure coolant suitable for high productivity.



Quick change capto OPTION

The Quick-Change tool system simplifies tool change operations. Recommended for users who need to change tools frequently or who need to reduce set-up times.



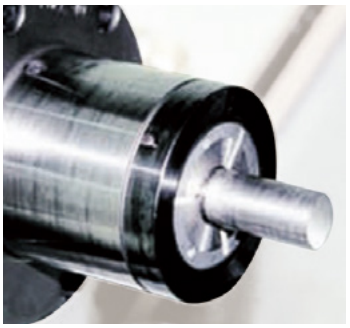
Optional equipment

Auto tool setter

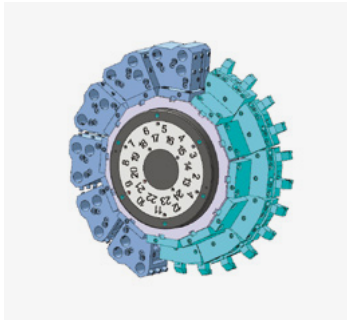
Coolant blower

Signal tower

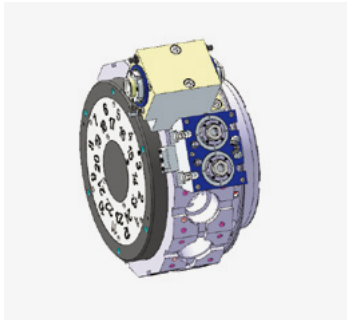
Collet chuck



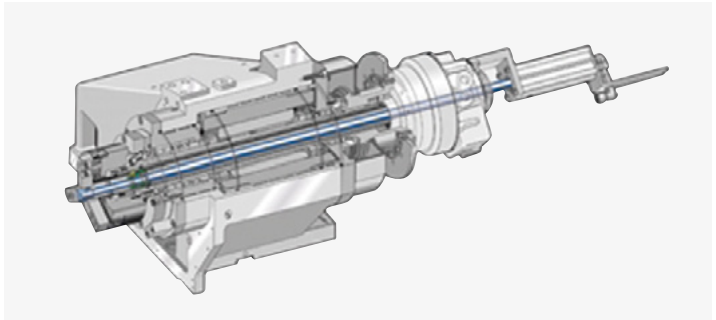
ID/OD special holder
(each turret 12ea/tool 24ea)



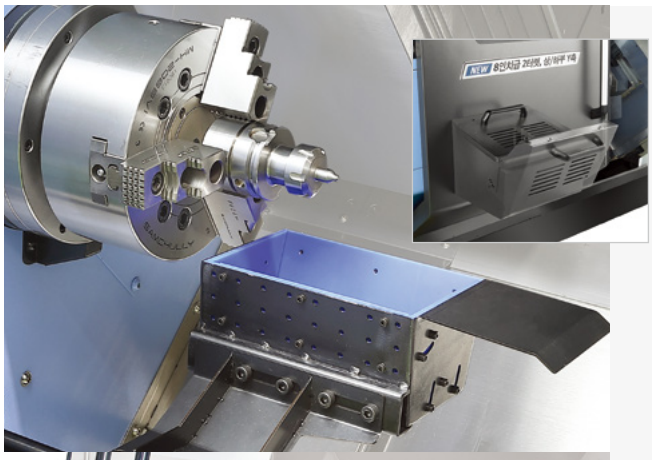
Milling special holder
(each turret 12ea/tool 24ea)

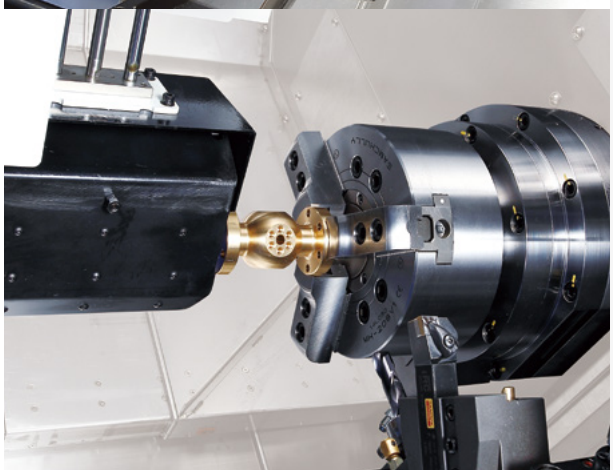


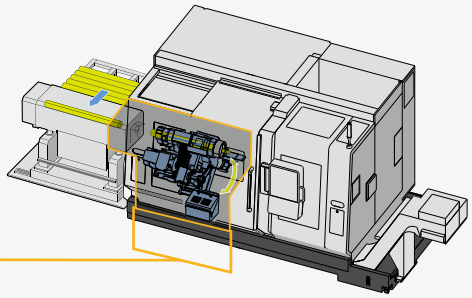
Work ejector



PERIPHERAL EQUIPMENT

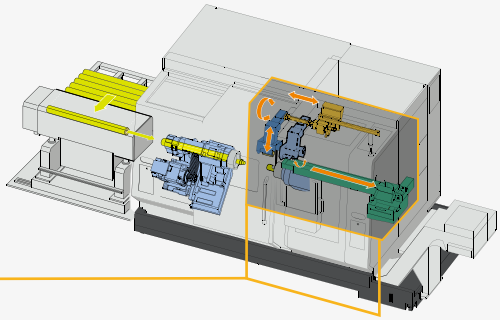






Left spindle parts catcher OPTION

Single operation parts produced on the left spindle, or bar remnants can be ejected into the bucket.



Right spindle parts unloader and ejector OPTION

Work processed by the right spindle is delivered to the parts unloader by the work ejector and then discharged to the parts conveyor.

Maximum material sizes for unloader / conveyor system

Max. work diameter

PUMA TT 1300SY/SYY
Ø51 mm (Ø2.0 inch)

PUMA TT 2100SYY
Ø65 mm (Ø2.6 inch)

Max work length

PUMA TT 1300SY/SYY
100 mm (3.9 inch)

PUMA TT 2100SYY
150 mm (5.9 inch)

Max work weight

PUMA TT 1300SY/SYY
1.6 kg (3.5 lb)

PUMA TT 2100SYY
3.5 kg (7.7 lb)

Parts conveyor OPTION

Finished workpieces are transferred to the indexable output belt conveyor which discharges them to a receiving container.

DN SOLUTIONS FANUC i PLUS

DN Solutions Fanuc i Plus maximizes customer productivity and convenience.

15" Screen + New OP

DN Solutions Fanuc i Plus' operation panel enhances operating convenience by incorporating common-design buttons and layout. It features a Qwerty keyboard for fast and easy data input and operation.

DN Solutions Fanuc i Plus

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

USB and PCMCIA card QWERTY keyboard

- EZ-Guide i standard
- Ergonimic operator panel
- 2MB Memory
- Hot keys

iHMI touchscreen

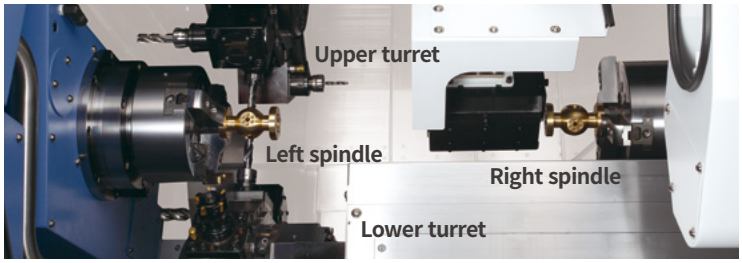
iHMI provides an intuitive interface that uses a touchscreen for quick and easy operation.

Range 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.



NUMERIC CONTROL SPECIFICATIONS

FANUC

Division	Item	Specifications	SY DN Solutions Fanuc i Plus	SYY DN Solutions Fanuc i Plus
Controlled axis	Controlled axes		8 (X1,Z1,C1,Y, X2,Z2,C2,A)	9 (X1,Z1,C1,Y1, X2,Z2,C2,Y2,A)
	Simultaneously controlled axes		4 axes (each path)	4 axes (each path)
Data input/output	Fast data server		○	○
	Memory card input/output		●	●
	USB memory input/output		●	●
	Large capacity memory(2GB)	Only with Fanuc i Plus iHMI	○	○
Interface function	Embedded ethernet		●	●
	Fast Ethernet		○	○
	Enhanced embedded ethernet function		●	●
Operation	DNC operation	Included in RS232C interface.	●	●
	DNC operation with memory card		●	●
Program input	Workpiece coordinate system	G52 - G59	●	●
Feed function	AI contour control I	G5.1 Q_, 40 Blocks	●	●
	AI contour control II	G5.1 Q_, 200 Blocks	○	○
Operation guidance function	EZ Guidei (Conversational programming solution)		●	●
	iHMI with machining cycle	Note *1) Only with 15" touch LCD standard	○*1)	○*1)
	Multi path function	Supporting 2 or 3 path machine	●	●
	EZ Operation package		●	●
Setting and display	CNC screen dual display function		●	●
Network	FANUC MTConnect		✪	✪
	FANUC OPC UA		✪	✪
Others	Display unit	15" color LCD	●	●
		15" color LCD with touch panel	○	○
	Part program storage size & Number of registerable programs	1280M(512KB)_1000 programs	X	X
		5120M(2MB)_1000 programs	●	●

Network: FANUC MTConnect and FANUC OPC UA available.

● *Standard* ○ *Optional* *X N/A* ✪ *Available*

DN SOLUTIONS FANUC i PLUS

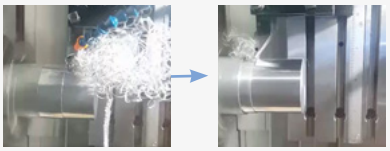
EZ-Guide i

Using the DN Solutions EZ-Guide i, users can create a cutting program for any desired shape, including patterns, by entering just the dimensions.

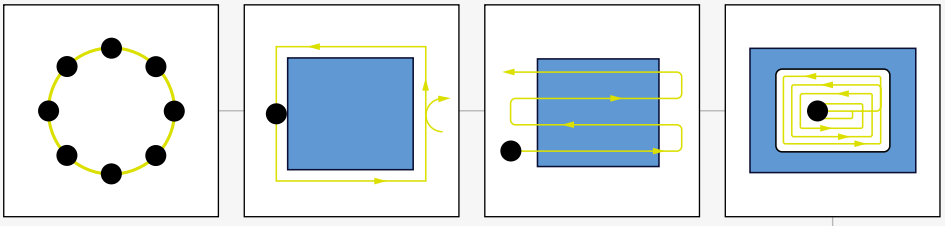
CBS, Chip Breaking Solution II

The servo axis vibrates in the direction of processing operations thereby improving chip control and preventing chip curling, and ensuring process stability, material transfer etc.

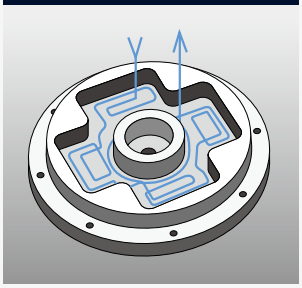
Comparison of results between regular turning operations and CBS II machining
*Only provided to chuck size 8 inch and under.



Example programming : Cutting shape



Example part



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.

EZ-Guide i screen

Enter the dimensions of the shape

EZ work

DN Solutions's EZ work supports the user with functions relating to tool data, error diagnostics, set up and machine monitoring.

Tool monitoring screen

Tool load monitoring function

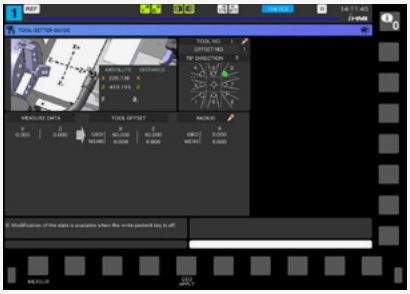
During cutting operation, abnormal load caused by wear or damage of the tool is detected and an alarm is triggered to prevent further damage.

Parts unloader maintenance and service screen

Convenience of maintenance and service

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

Q-setter Automatic measurement



Convenient set up for peripheral equipment

Helps tool setter guide, work setting, tailstock setting, and other measurement and parameter control to reduce setting-up time and facilitates operation.

Tool management

CONVENIENT OPERATION

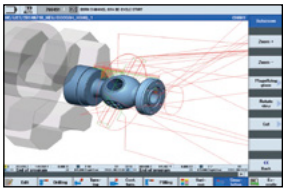
SIEMENS SINUMERIK ONE

21.5 inch display + New OP

Two path programs are displayed simultaneously in the large 21.5-inch screen for enhanced user convenience.

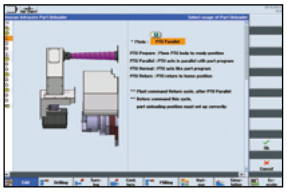
- 21.5-inch display
- 6GB user memory
- USB (standard)
- QWERTY keyboard

Conversational convenient function



Cutting and operation support function

This function shows a cutting and tool path simulation in real-time.



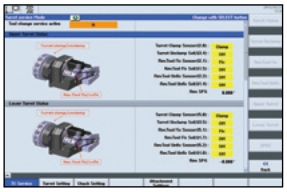
Shop-turn mode
[various]
↓
[attachments]

The automation elements (parts catcher, parts unloader etc.), can be easily controlled via interactive screens.

[Custom]
↓
[Protection zones]

Operation safety function

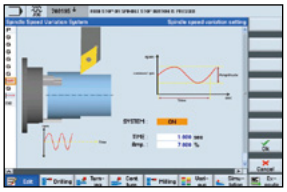
Protection Zone Synchronized Actions checks the interference between the turret and the spindle to prevent collisions caused by operator error.



[offset]
↓
[operating parameter]
↓
[TC service]

Maintenance and service convenience function

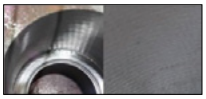
Maintenance and service of major equipment and peripheral devices, including the timer and parts counter settings can be easily undertaken.



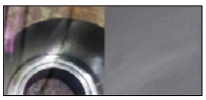
[various]
↓
[attachment]
↓
[DSSV]

Machining accuracy improvement

The NC controls spindle speed at an optimal level for precision threading and turning, making it possible to automatically improve surface roughness.



Before applying the functi



After applying the function

NUMERIC CONTROL SPECIFICATIONS

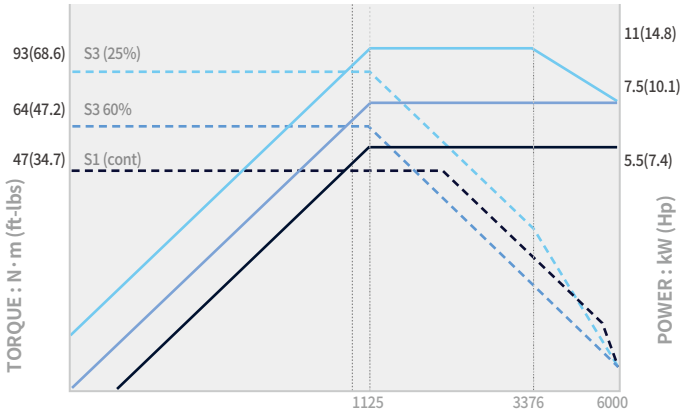
SIEMENS

Division	Item	Specifications	SYY			
			S828D	SONE	S828D	SONE
Controlled axis	Controlled axes		X1,Z1,C1,X2,Z2,C2,Z3,C3,C4		X1,Z1,C1,X2,Z2,C2,Z3,C3,C4,Y	
	Simultaneously controlled axes		4 axes	4 axes	4 axes	4 axes
Data input/output	Memory card input/output		X	X	X	X
	USB memory input/output		●	●	●	●
Interface function	Ethernet	(X130)	○	●	○	●
Operation	On network drive	(without EES option, Extcall)	○	●	○	●
	On USB storage medium, e.g. memory stick	(without EES option, Extcall)	●	●	●	●
Program input	Workpiece coordinate system	G54 - G59, G507 - G599	●	●	●	●
Feed function	Advanced surface		X	●	X	●
	Top surface		X	X	X	X
	Look ahead number of block		1	1000	1	1000
Programming & Editing function	3D simulation, finished part		●	●	●	●
	Simultaneous recording		●	●	●	●
	DXF reader for PC integrated in SINUMERIK operate		○	○	○	○
Operation guidance function	Shopturn		●	●	●	●
	EZ operation package		●	●	●	●
Setting and display	Operation via a VNC viewer		●	●	●	●
Network	MTConnect		✪	✪	✪	✪
	OPCUA		○	○	○	○
Others	Display unit	15.6" color display with touch screen(SW4.9)	●	○	●	○
		21.5" color display with touch screen(SW4.9)	X	●	X	●
	Part program storage size	CNC user memory 10 MB	●	●	●	●
		CNC user memory 100 MB	○	○	○	○
		CNC user memory 6GB	X	○	X	○
		CNC user memory 40GB (with PCU or IPC)	X	○	X	○
		CNC user memory without limit(Execution from extenal storage devices)(EES / Using by USB or Network)	○	○	○	○
		HMI user memory for CNC part program 6GB	X	●	X	●

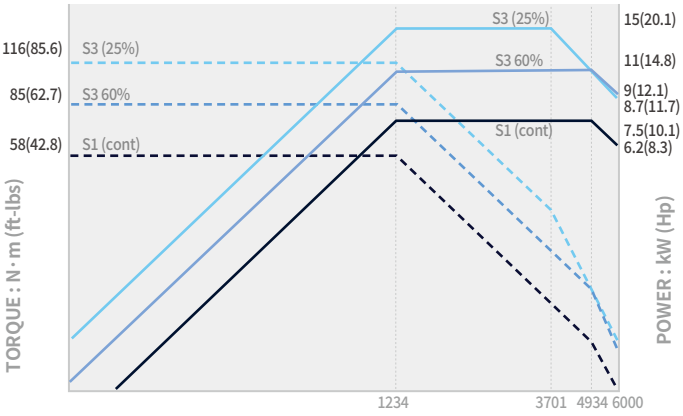
● *Standard* ○ *Optional* *X N/A* ✪ *Available*

POWER | TORQUE

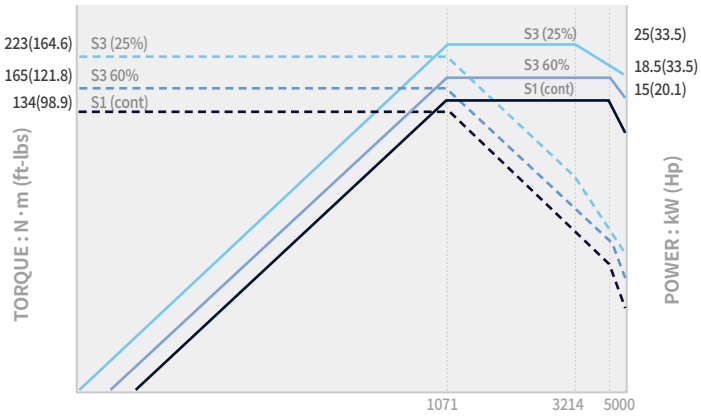
L/R Spindle
PUMA TT1300SY/SYY



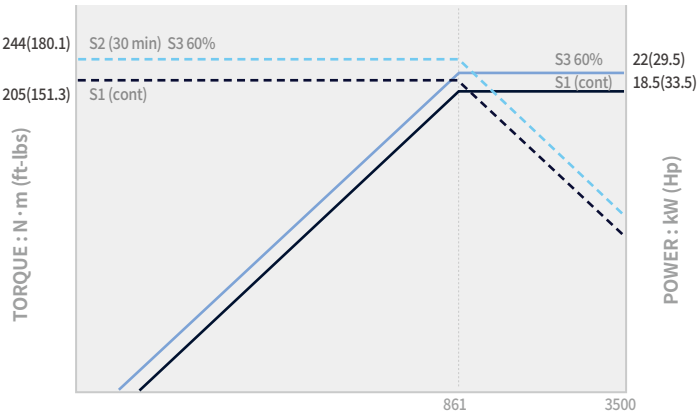
L Spindle
PUMA TT1300SYYB



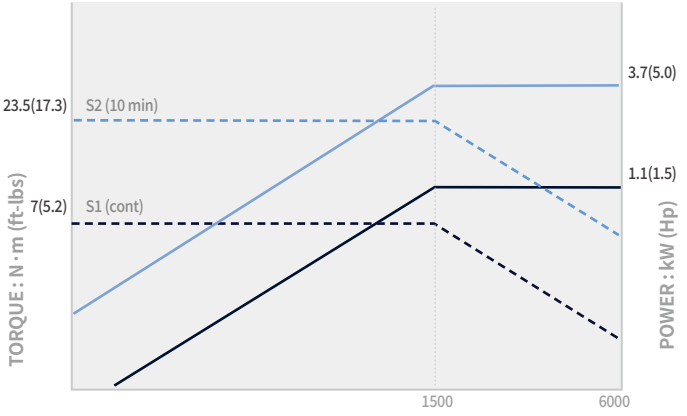
L/R Spindle
PUMA TT2100SYY



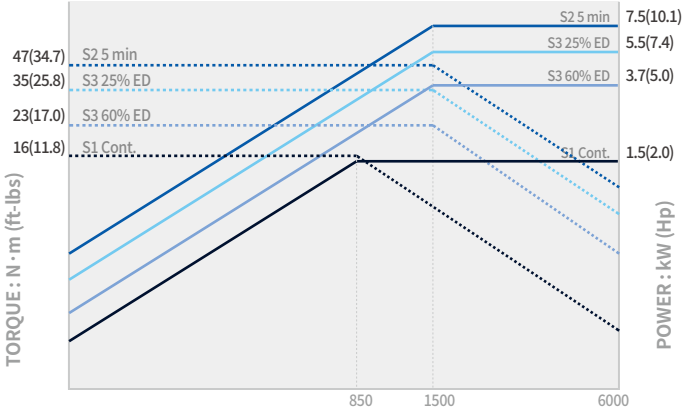
L Spindle
PUMA TT2100SYYB



Turret
PUMA TT 1300SY/SYY_6000 r/min



BMT55P
PUMA TT2100SYY/SYYB_6000 r/min

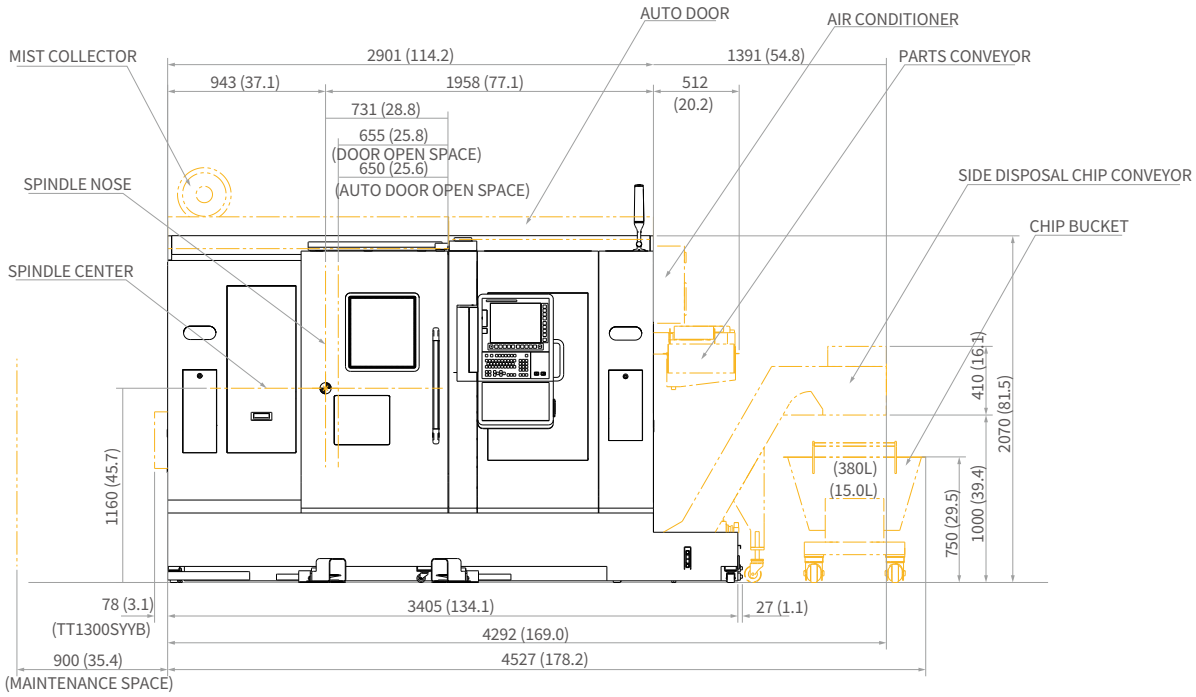


EXTERNAL DIMENSIONS

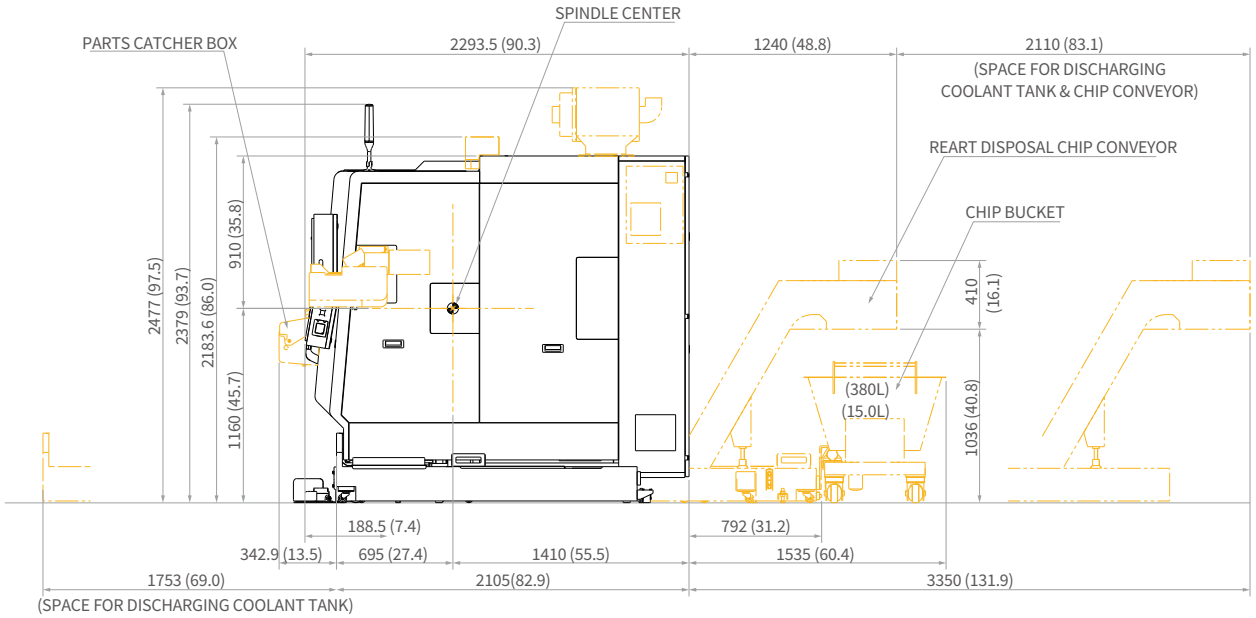
PUMA TT1300SYY

Unit : mm (inch)

FRONT



SIDE

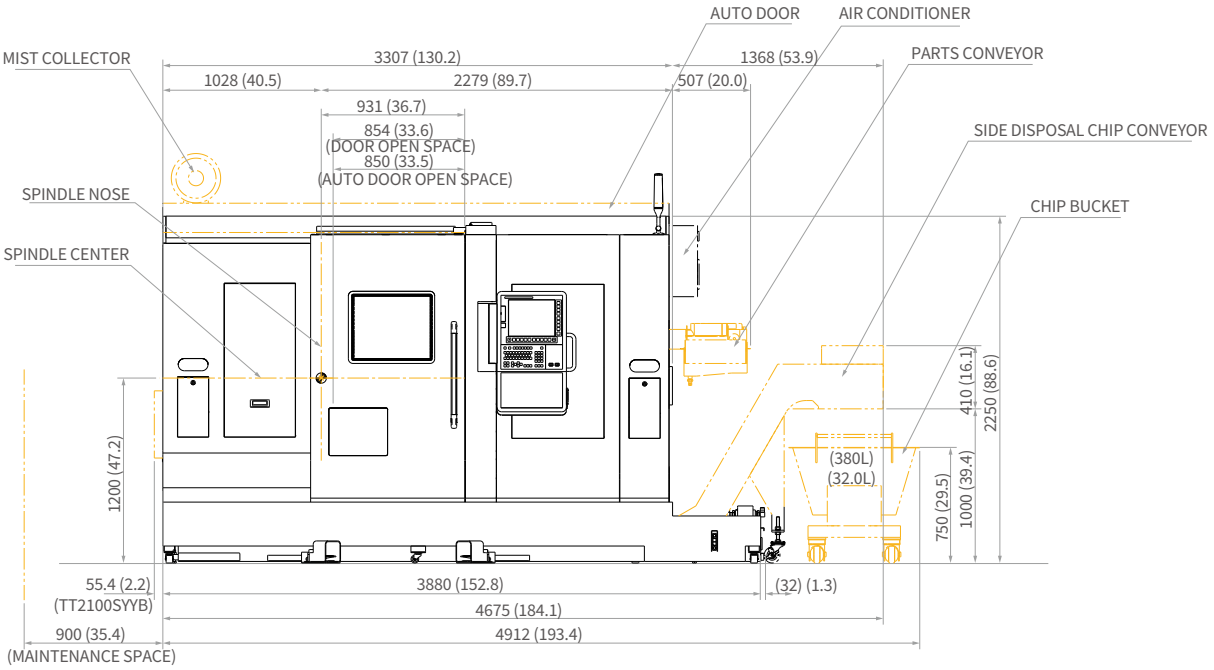


EXTERNAL DIMENSIONS

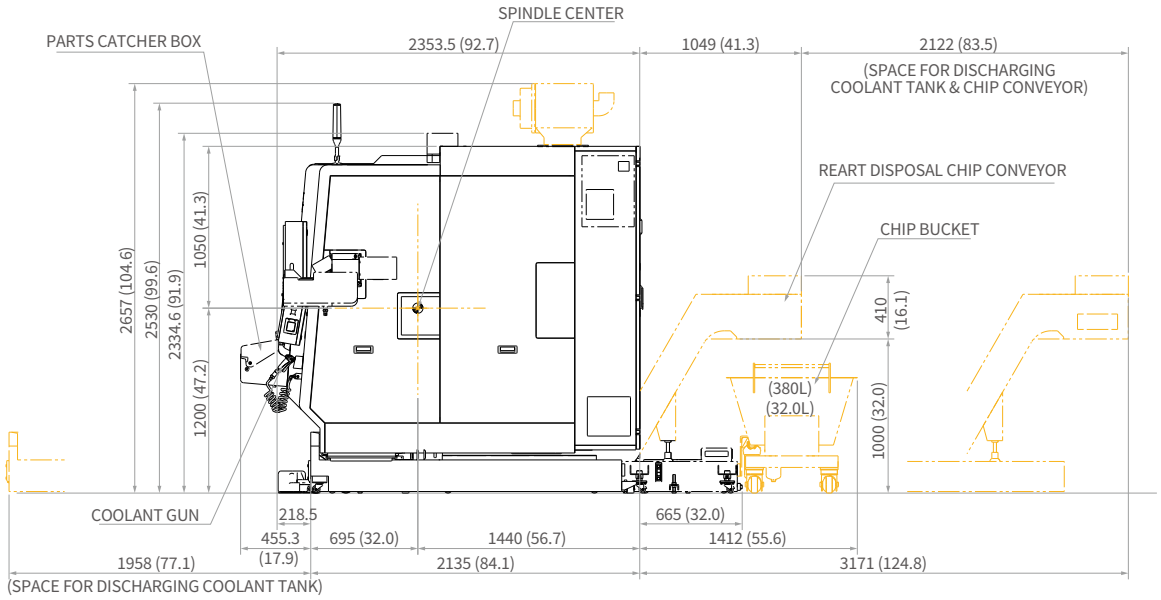
PUMA TT2100SYY

Unit : mm (inch)

FRONT



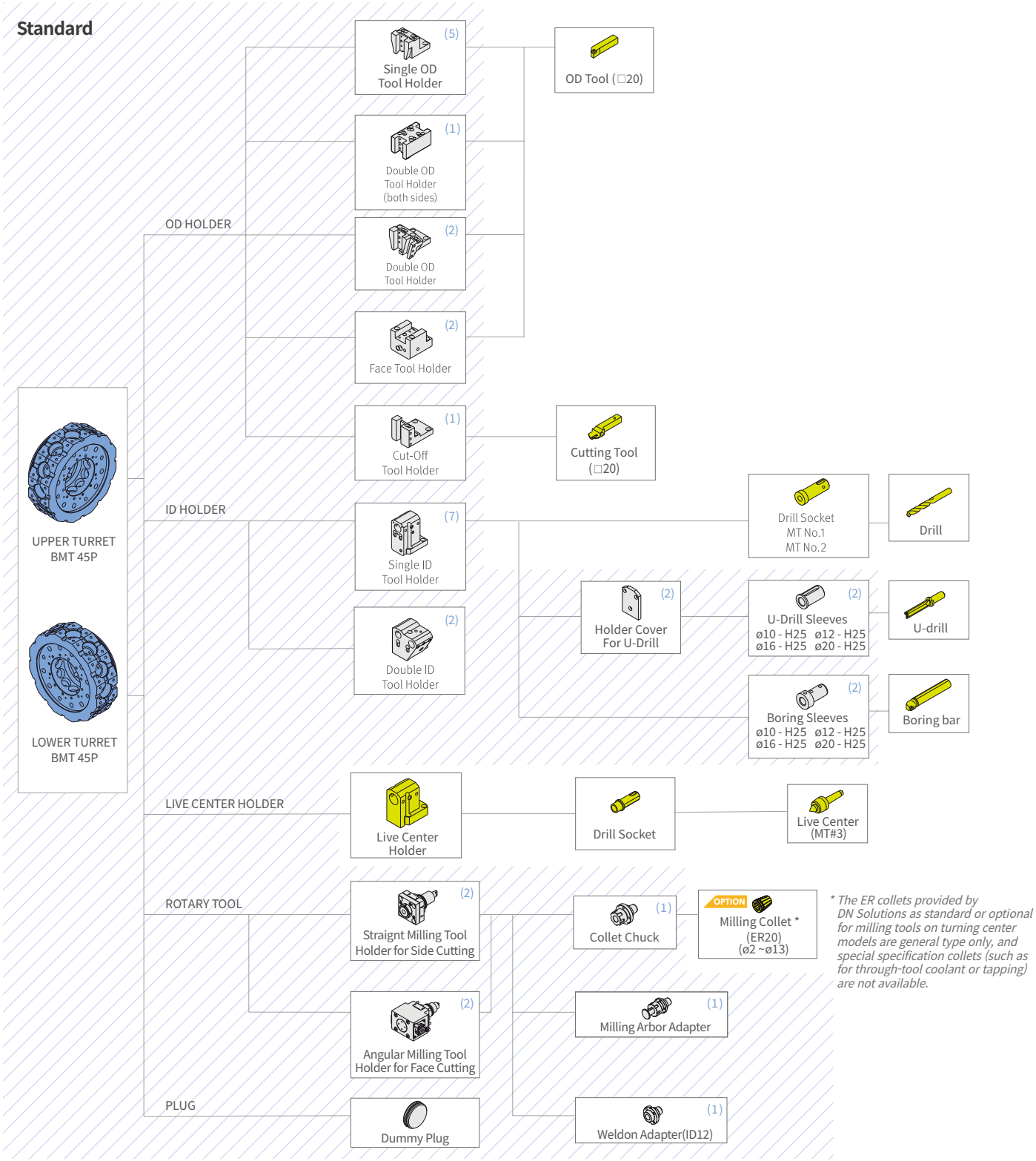
SIDE



TOOLING SYSTEM

PUMA TT1300SYY

Unit : mm (inch)

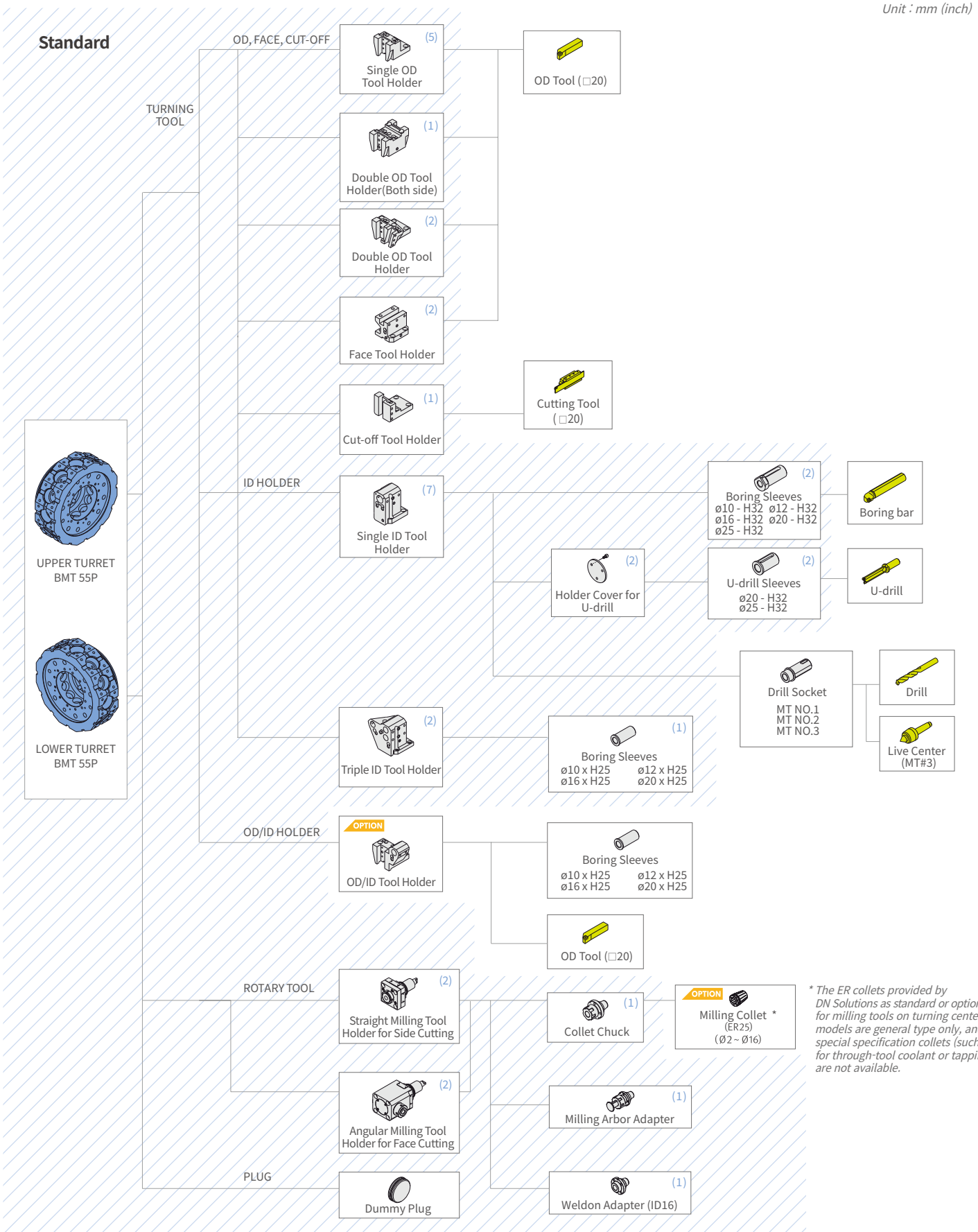


** The ER collets provided by DN Solutions as standard or optional for milling tools on turning center models are general type only, and special specification collets (such as for through-tool coolant or tapping) are not available.*

TOOLING SYSTEM

PUMA TT2100SYY

Unit : mm (inch)

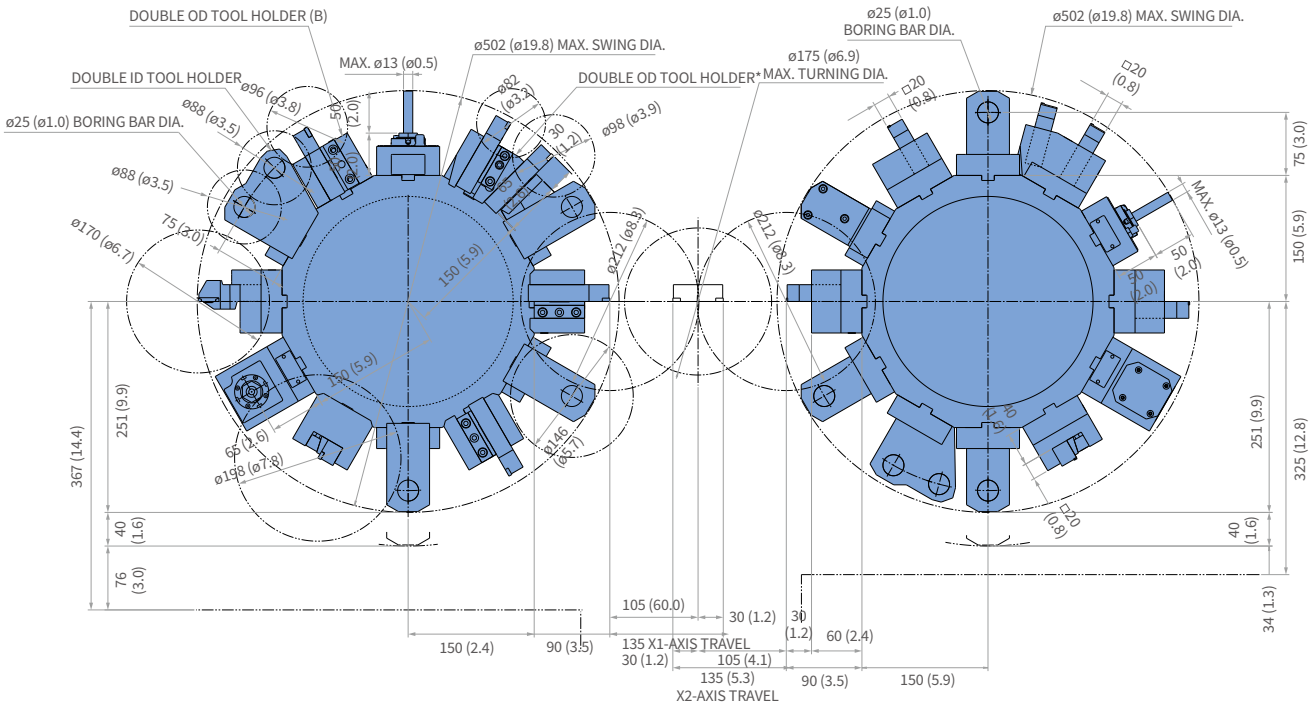


** The ER collets provided by DN Solutions as standard or optional for milling tools on turning center models are general type only, and special specification collets (such as for through-tool coolant or tapping) are not available.*

TOOL INTERFACE

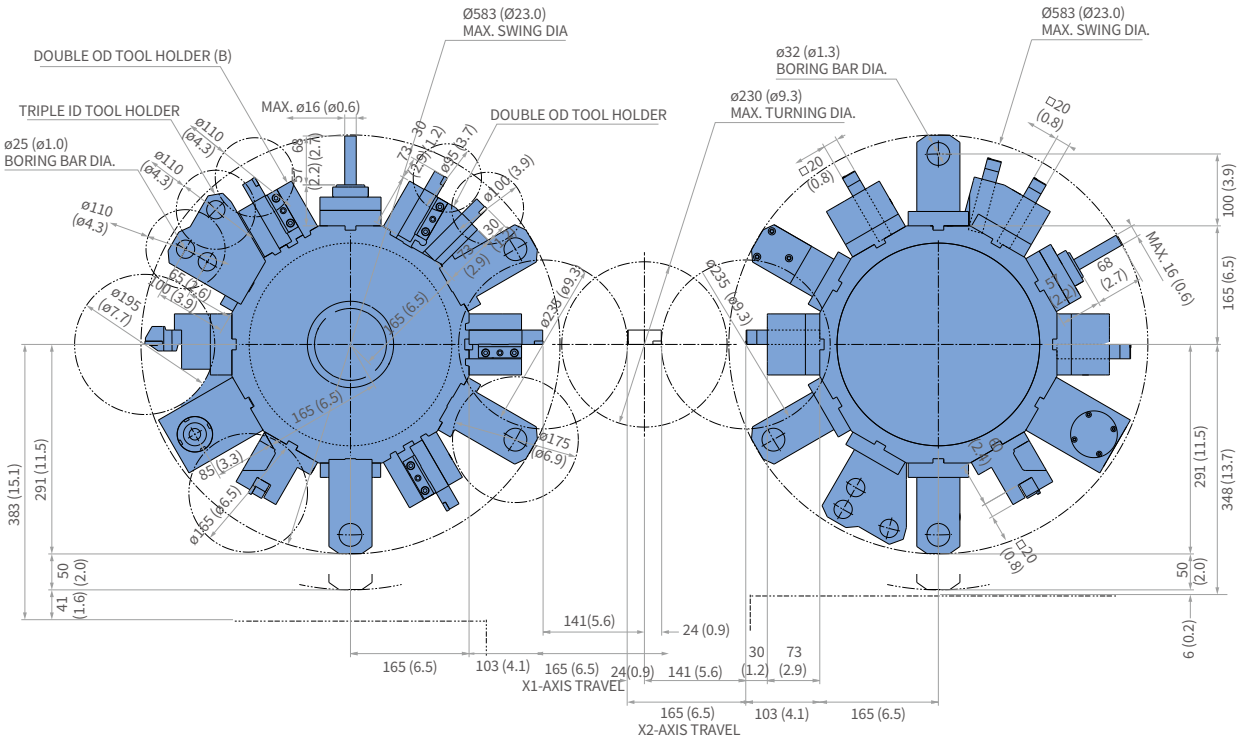
Unit : mm (inch)

PUMA TT1300SY/SYY



UPPER TURRET LOWER TURRET

PUMA TT2100SYY

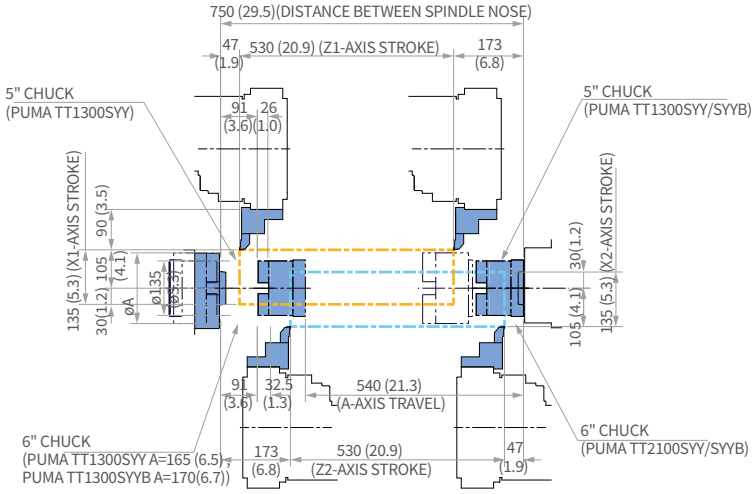


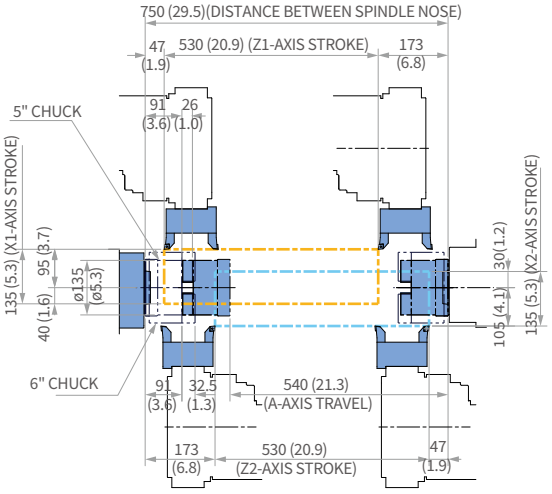
UPPER TURRET LOWER TURRET

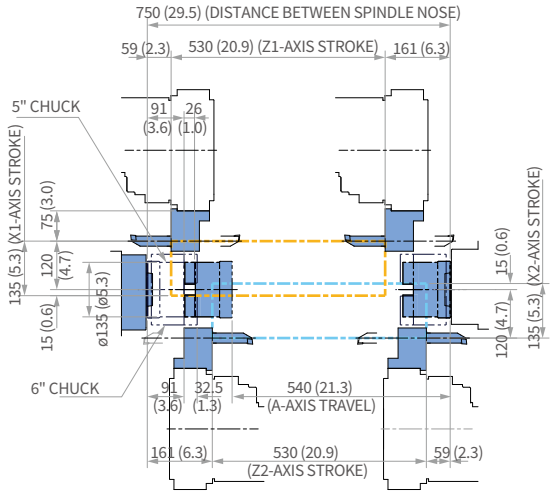
WORKING RANGE

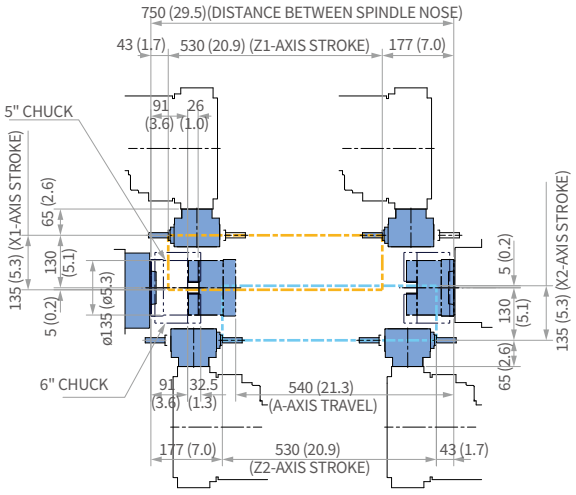
PUMA TT1300SYY

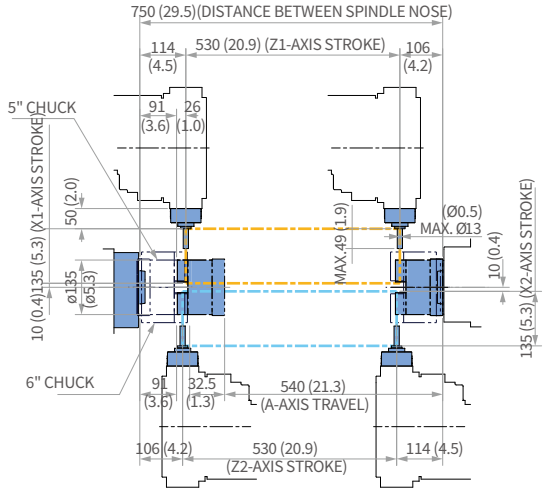
Unit : mm (inch)

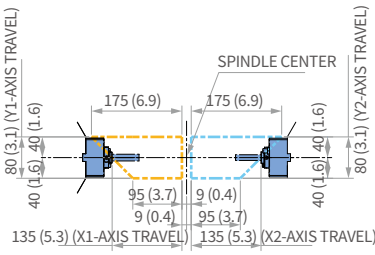


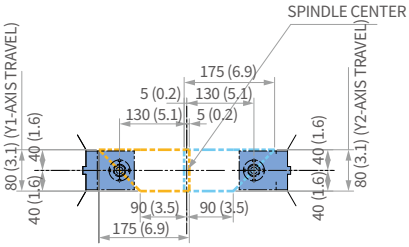








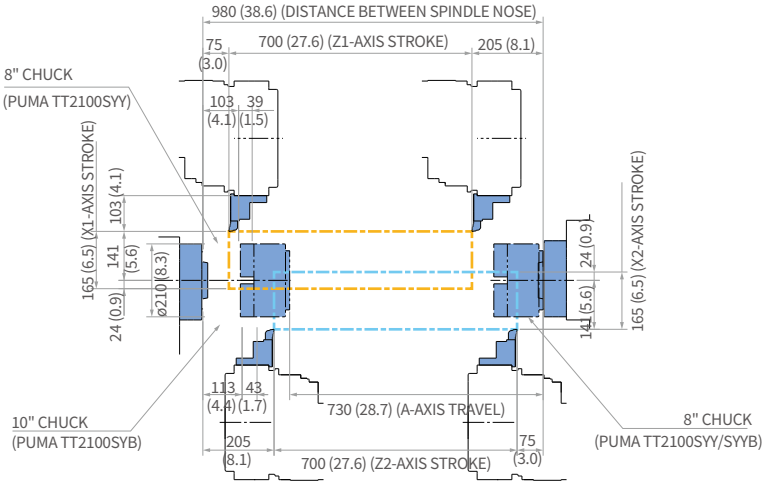


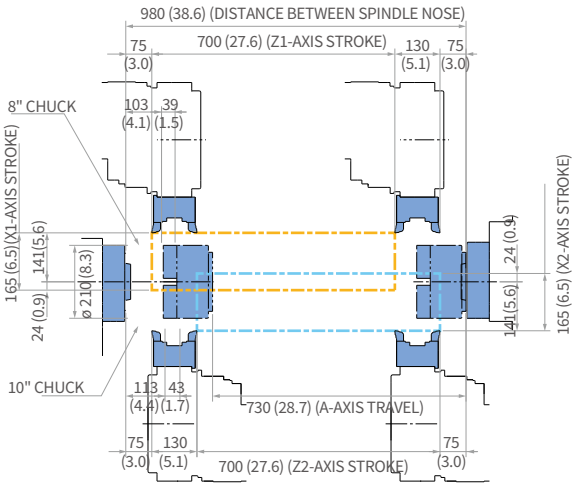


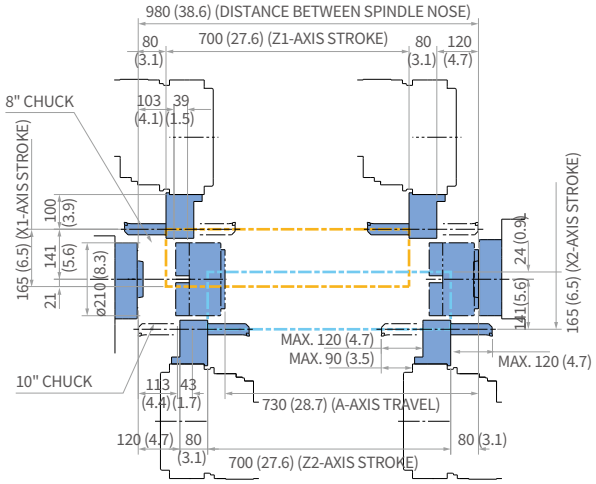
WORKING RANGE

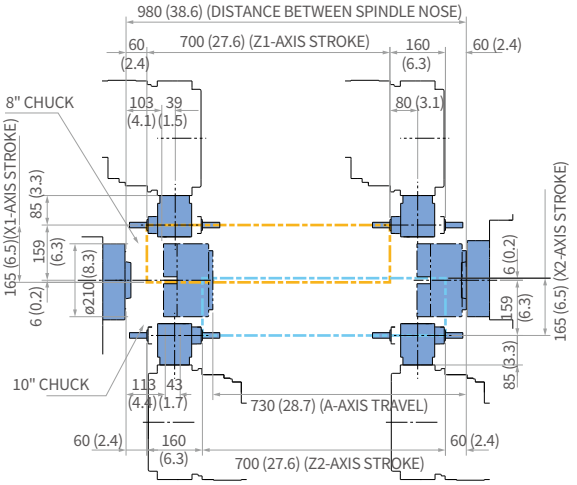
PUMA TT2100SYY

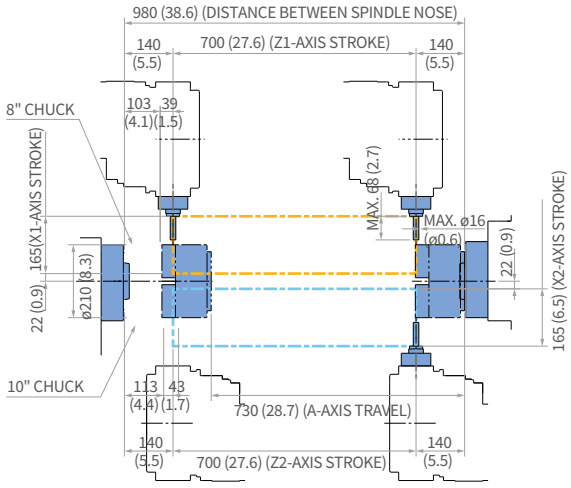
Unit : mm (inch)

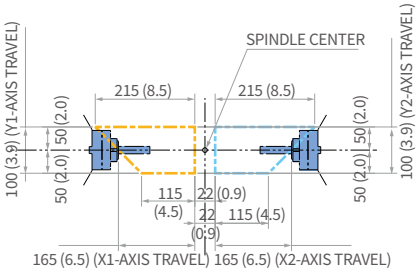


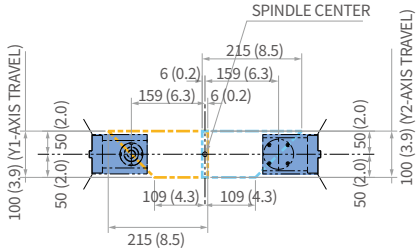












MACHINE SPECIFICATIONS

PUMA TT1300SYY·2100SYY

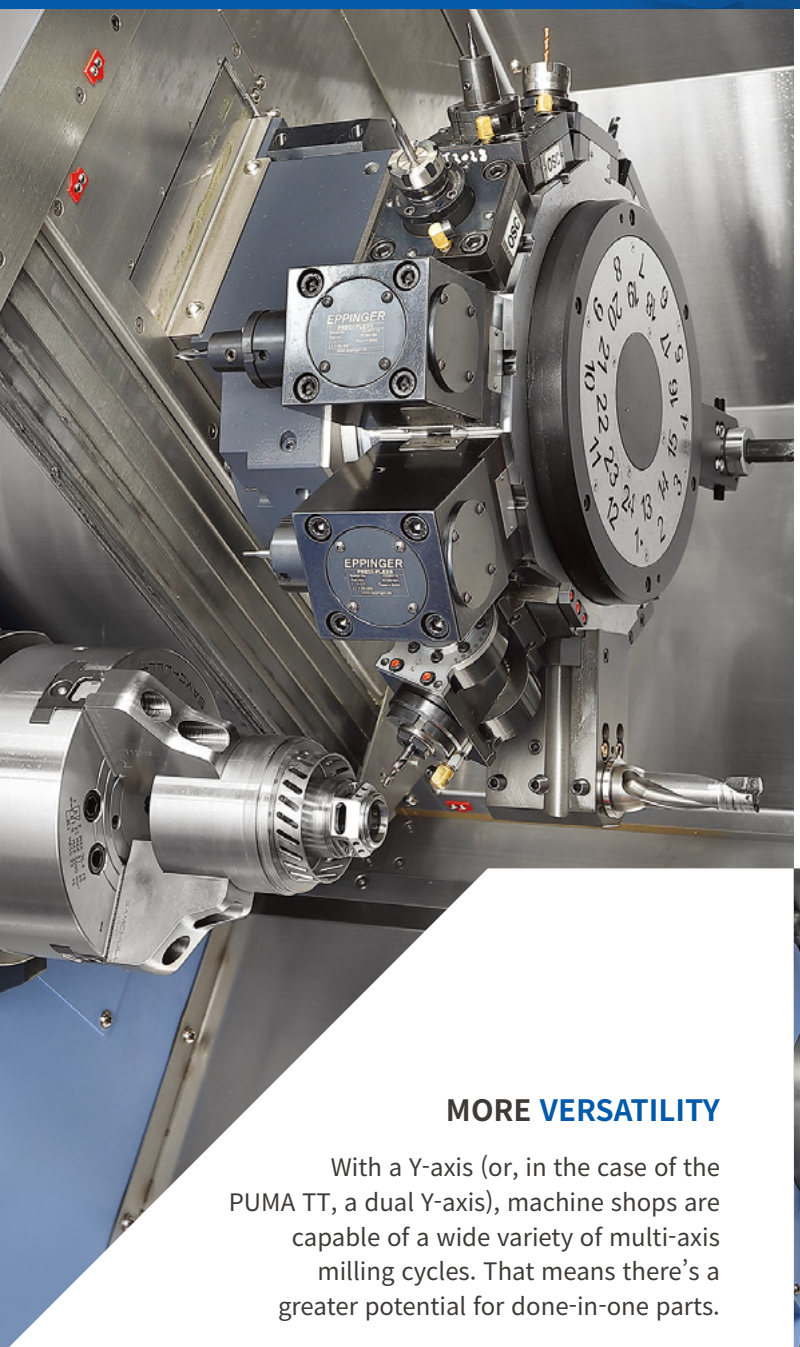
Description			Unit	PUMA TT1300SY/SYY	PUMA TT1300SYB/SYYB	PUMA TT2100SYY	PUMA TT2100SYYB
Capacity	Swing over bed		mm (inch)	175 (6.9)		230 (9.1)	
	Swing over saddle		mm (inch)	175(6.9)		230 (9.1)	
	Recommended turning diameter		mm (inch)	135 (5.3)		210 (8.3)	
	Maximum turning diameter		mm (inch)	Upper turret: 175 (6.9) Lower turret: 175 (6.9)		Upper turret: 230 (9.1) lLower turret: 230 (9.1)	
	Maximum turning length		mm (inch)	120 (4.7)		230 (9.1)	
	Chuck size (left spindle)		inch	5/5	6/5	8/8	10/8
	Bar working diameter		mm (inch)	42/42 (1.7/1.7)	51/42 (2.0/1.7)	65/65 (2.6/2.6)	81/65 (3.2/2.6)
Travel	Travel distance	X1/X2-axis	mm (inch)	TT 1300SY: 135/150 (5.3/5.9) PUMA TT1300SYY: 135/135 (5.3/5.3)		165 (6.5)	
		Z1/X2-axis	mm (inch)	530 (20.9)		700 (27.6)	
		Y-axis	mm (inch)	80 (±40) (3.1 (±1.6))		100 (±50) (3.9 (±2.0))	
		A-axis	mm (inch)	540 (21.3)		730 (28.7)	
Feedrates	Rapid traverse rate	X1/X2-axis	m/min (ipm)	30 (1181.1)		30 (1181.1)	
		Z1/X2-axis	m/min (ipm)	40 (1574.8)		40 (1574.8)	
		Y-axis	m/min (ipm)	15 (590.6)		15 (590.6)	
		A-axis	m/min (ipm)	40 (1574.8)		40 (1574.8)	
Left spindle	Maximum spindle speed		r/min	6000		5000	3500
	Maximum spindle power		kW (Hp)	11/7.5/5.5 (14.8/10.1/7.4) (S3 25%/S3 60%/ cont.)	15/11/7.5 (20.1/14.8/10.1) (S3 25%/S3 60%/ cont.)	25/18.5/15 (44.9/24.8/20.1) (S3 25%/S3 60%/ cont.)	22/18.5 (44.9/24.8) (S3 60%/cont.)
	Maximu m spindle torque		N·m (ft-lbs)	93 (68.6)	116 (85.6)	223 (164.6)	244 (180.1)
	Spindle nose		ASA	A2 #5		A2 #6	A2 #8
	Spindle bearing diameter (front)		mm (inch)	80 (3.1)	90 (3.5)	110 (4.3)	130 (5.1)
	Spindle through hole		mm (inch)	53 (2.1)	61 (2.4)	76 (3.0)	91 (3.6)
	Minimum spindle indexing angle (C-axis)		deg	0.001		0.001	
Right spindle	Maximum spindle speed		r/min	6000		5000	
	Maximum spindle power		kW (Hp)	11/7.5/5.5 (14.8/10.1/7.4) (S3 25%/S3 60%/continuous)		25/18.5/15 (44.9/24.8/20.1) (S3 25%/S3 60%/continuous)	
	Maximum spindle torque		N·m (ft-lbs)	93 (68.6)		223 (164.6)	
	Spindle nose		ASA	A2 #5		A2 #6	
	Spindle bearing diameter (front)		mm (inch)	80 (3.1)		110 (4.3)	
	Spindle through hole		mm (inch)	53 (2.1)		76 (3.0)	
	Minimum spindle indexing angle (C-axis)		deg	0.001		0.001	
Turret	Number of tool stations (upper+lower)		ea	24 + 24 position		24 + 24 position	
	Holder mount type		-	BMT45P		BMT55P	
	OD tool size		mm (inch)	20 x 20 (0.8 x 0.8)		20 x 20 (0.8 x 0.8)	
	Maximum boring bar size (main/sub)		mm (inch)	ø25 (ø1.0)		ø32 (ø1.3)	
	Turret indexing time (1 station swivel)		s	0.12		0.12	
	Maximum rotary tool speed		r/min	6000		6000	
	Maximum rotary tool speed power		kW (Hp)	3.7/1.1 (5.0/1.5) (S3 25%/continuous)		7.5/1.1 (10.1/1.5) (S2 5-min/continuous)	
	Maximum rotary tool speed torque		N·m (ft-lbs)	23.5 (17.3)		47.7 (35.2)	
Power source	Electric power supply (rated capacity)		kVA	49.68 / 50.17	51.68 / 52.17	69.40	72.90
Machine dimensions	Length		mm (inch)	3405 (134.1)	3510 (138.2)	3880 (152.8)	3940 (155.1)
	Width		mm (inch)	2300 (90.6)		2360 (92.9)	
	Height		mm (inch)	2070 (81.5)		2250 (88.6)	
	Weight		kg (lb)	8000 (17636.7)	8100 (17857.2)	9500 (20943.6)	9600 (21164.1)
CNC	NC system			DN Solutions Fanuc i Plus {Fanuc 31i}*			

*{ } : option

WHY Y-Axis?

DOUBLE THE PRODUCTIVITY

Adding a single Y-axis to your machine allows for single-setup efficiency and a new level of accuracy. But if you add a dual Y-axis—as you can in the PUMA TT series—the productivity difference is so striking that you won't ever go back.



DUAL POWER

The PUMA TT series doubles productivity with independently-operating left/right spindles and upper/lower turrets. What's more, the lower Y-axis increases productivity 20% more than having only an upper Y-axis.
(PUMA TT1300/2100SYY)

MORE VERSATILITY

With a Y-axis (or, in the case of the PUMA TT, a dual Y-axis), machine shops are capable of a wide variety of multi-axis milling cycles. That means there's a greater potential for done-in-one parts.

RESPONDING TO CUSTOMERS **ANYTIME, ANYWHERE**

DN SOLUTIONS GLOBAL NETWORK

66 COUNTRIES | **140** + SALES NETWORKS | **3** FACTORIES | **6** REGIONAL HQS

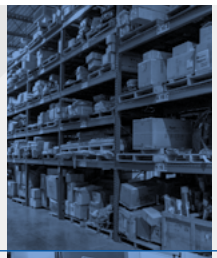
CUSTOMER SUPPORT AND SERVICES

WE'RE THERE FOR YOU WHENEVER YOU NEED US.

We help our customers operate at maximum efficiency by providing them with a range of tried, tested and trusted services - from pre-sales consultancy to post-sales support.

FIELD SERVICES

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



PARTS SUPPLY

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

TRAINING

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

TECHNICAL SUPPORT

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

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** For more details, please contact DN Solutions.*
** Specifications and information contained within this catalogue may be changed without prior notice.*

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