DOOSAN

PUMA 600/700/800 II series

Doosan's Large Horizontal Turning Center with 2-axis to Y-axis Machining Capability

PUMA 600 II series
PUMA 700 II series
PUMA 800 II series

MACHINE GREATNESS™

PUMA 600/700/800Ⅱ series

PUMA 600/700/800 Ⅱ series is a large horizontal turning center ideally designed for machining pipes and flanges used in oil and gas industry, hydraulic parts used in construction equipment, and also complex parts used in aircraft and ship building industry. Its maximum turning diameter and length are Ø900mm and 5050mm, respectively, which is the highest in its class. The slant bed design allows easy chip disposal.

Contents

Single setup for machining large complex parts.

- Maximum productivity can be achieved with the 200mm (±100mm) orthogonal Y axis structure, which allows users to machine variety of large and complex part.

Boasting the largest machining area and top performance in its class, PUMA 600/700/800 II series is perfect for machining large work pieces.

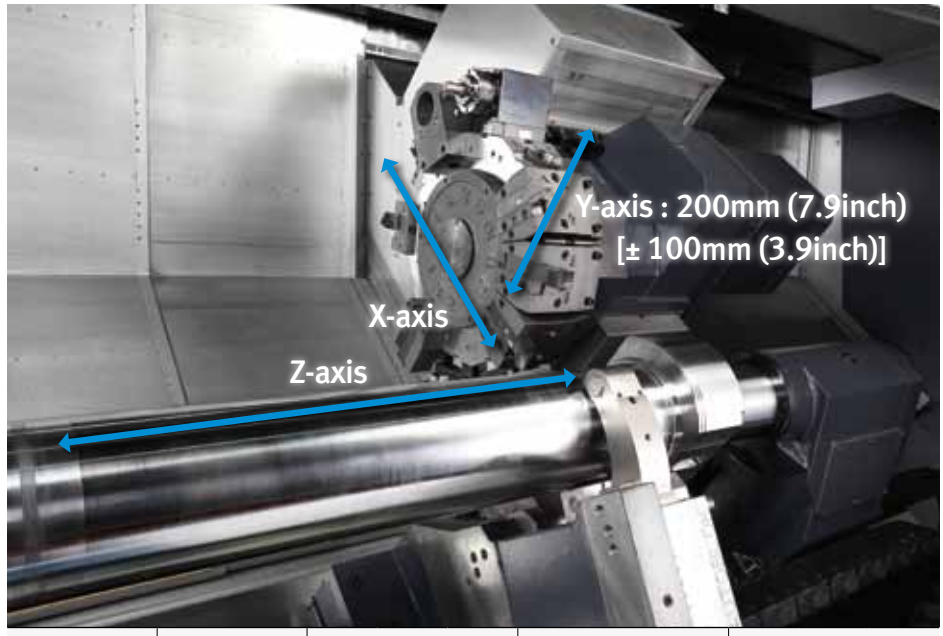
- With 5m maximum turning length, Ø900mm maximum turning diameter, and 11,004N.m of Torque, machine is ideal for heavy-duty cutting of large parts used in different industries.
- CAPTO type ATC(Auto Tool Changer) enable to increase the number of tooling and reduce setting time, and it is advantageous for machining hard-to-cut materials(Titanium, Inconel) or automation system. option

Machining Solution for wide range of pipes.

- Ø375 mm maximum spindle through hole diameter makes it ideal for turning large diameter pipes.
- Wide range of solution to improve threading performance and reduce failure ratio.

Basic Structure

Machine capability ranges from 2-axis to Y axis, which allows single setup to maximize productivity of machining large diameter parts.

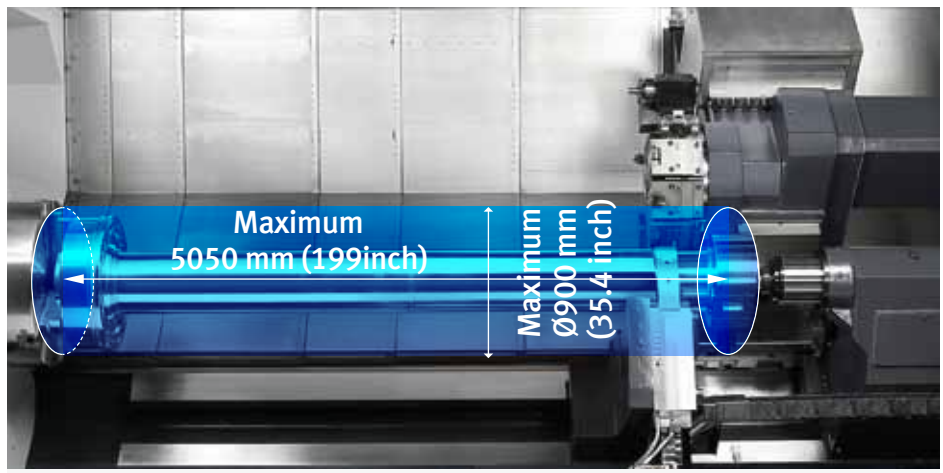


Series	Chuck* Size (inch)	1600 mm (63 inch)			3200 mm (126 inch)			5050 mm (199 inch)		
		2-axis	M	Y	2-axis	M	Y	2-axis	M	Y
PUMA 600 Ⅱ	18	O	O	-	O	O	O	O	O	O
PUMA 700 Ⅱ	24	O	O	-	O	O	O	O	O	O
PUMA 800 Ⅱ	32	O	O	-	O	O	O	O	O	O
PUMA 800B Ⅱ	Order made	O	-	-	O	-	-	-	-	-

*Chuck and chuck cylinder are optional features.

Machining area

The largest work envelop in its class with maximum turning diameter of Ø900 mm and maximum turning length of 5 m.



Max. turning diameter

ø900mm (35.4inch)

Max. turning length

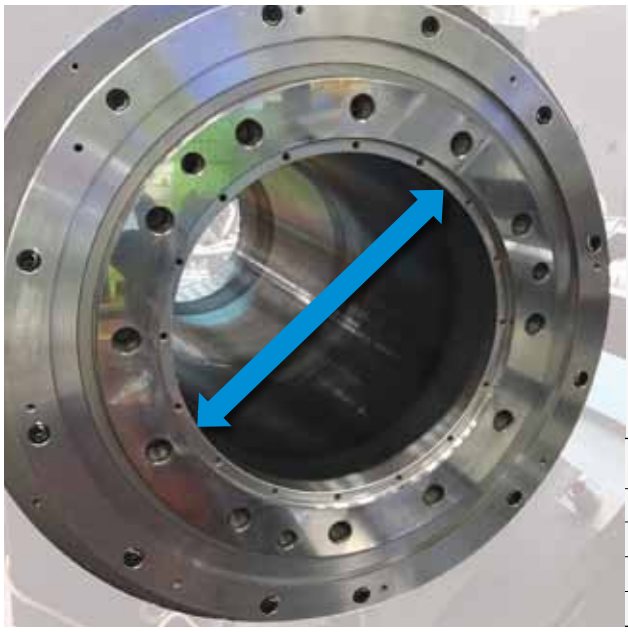
5050mm (199inch)

Unit: mm (inch)

	Model	Max. turning diameter	Max. turning length
2-axis	PUMA 600 /700/800/800B Ⅱ	900 (35.4)	1600 (63)
	PUMA 600L/700L/800L/800LB Ⅱ		3200 (126)
	PUMA 600XL/700XL/800XL Ⅱ		5050 (199)
M	PUMA 600M/700M/800M Ⅱ		1600 (63)
	PUMA 600LM/700LM/800LM Ⅱ		3200 (126)
	PUMA 600XLM/700XLM/800XLM Ⅱ		5050 (199)
Y	PUMA 600LY/700LY/800LY Ⅱ	750 (29.5)	3250 (128)
	PUMA 600XLY/700XLY/800XLY Ⅱ		5050 (199)

Machining area

Machine available in various spindle through hole sizes to provide adequate machining solutions for different size pipes.



Max. spindle through hole diameter

ø375mm
(14.8 inch)

Unit: mm (inch)

Series	Max. spindle through hole diameter
PUMA 600 Ⅱ	152 (6.0)
PUMA 700 Ⅱ	181 (7.1)
PUMA 800 Ⅱ	320 (12.6)
PUMA 800B Ⅱ	375 (14.8)

Spindle

The gearbox design allows PUMA 600/700/800 Ⅱ seriesspindle to have unparalleled power and torque, which boosts productivity with extreme heavy-duty cutting capability.

Max. spindle speed

750r/min

Max. spindle power

55kW
(73.8 hp)

75kW option
(100.1 hp)

Max. spindle torque

8076N·m
(5960.1 lbf·ft)

11013N·m option
(8127.6 lbf·ft)

PUMA 800 series

Series	Max. spindle speed	Max. spindle power	Max. spindle torque
PUMA 600 Ⅱ	1800 r/min	55 kW (73.8hp) 75 kW (100.6 hp) option	6622 N·m (4887.0 lbf·ft) 9030 N·m (6664.1 lbf·ft) option
PUMA 700 Ⅱ	1500 r/min		8076 N·m (5960.1 lbf·ft) 11013 N·m (8127.6 lbf·ft) option
PUMA 800 Ⅱ	750 r/min		
PUMA 800B Ⅱ	500 r/min		

Tailstock

Standard programmable tailstock gives you the ability to easily adjust position of the tailstock for different work pieces to minimize setup time.

Tailstock travel

1550mm (61 inch)

3135mm* (L) (123 inch)

4885mm (XL) (192 inch)

Unit: mm (inch)

Model	Quill diameter	Quill travel
PUMA 600/M/L/LM Ⅱ	160 (6.3)	150 (5.9)
PUMA 700/M/L/LM Ⅱ		
PUMA 800/M/L/LM Ⅱ		
PUMA 600LY/XL/XLM/XLY Ⅱ	180 (7.1)	150 (5.9)
PUMA 700LY/XL/XLM/XLY Ⅱ		
PUMA 800LY/XL/XLM/XLY Ⅱ		
PUMA 800B/LB Ⅱ		

* Tailstock travel of PUMA 600 Ⅱ/700 Ⅱ/800LY Ⅱ is 3085mm(121.5inch).

Turret

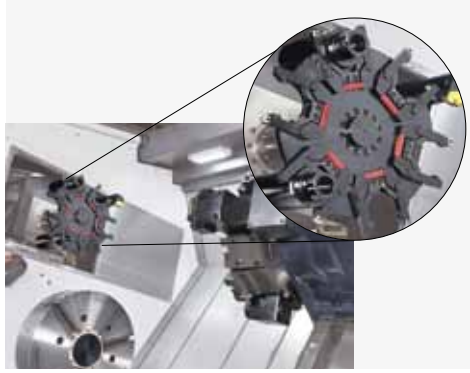
Doosan's unique BMT85P design turret is used on M and Y-Axis models to boost heavy-duty cutting performance.

2-axis model **No. of tool stations** **12 stations**

M,Y Model **BMT85P** **No. of tool stations** **12 stations**

Automatic tool Changer

Capto tool of ATC provide the higher productivity at difficult to cut material

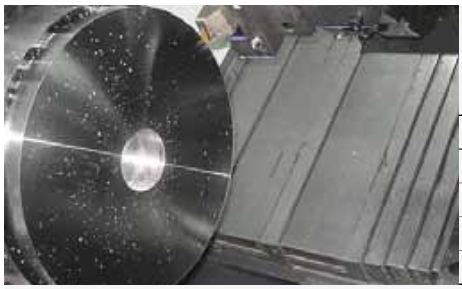


Description		Spec.
MAGAZINE & ATC	Tool shank	CAPTO C8
	Tool storage capa.	6 ea
	Max. tool diameter	Ø80 mm (3.1 inch)
	Max. tool length	320mm (400mm*) (12.6 (15.7inch*))
	Max. tool weight	10 kg(22.0lb)
	Magazine motor	Servo

* Tech. discussion is required in advance

Cutting performance

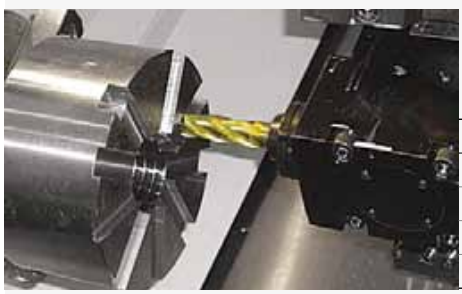
PUMA 600/ 700/800Ⅱ series can perform excellent heavy-duty machining in many different ways such as ID/OD turning, end milling, tapping, and U-drilling, to maximize productivity.



O.D turning (Material diameter Ø 380 mm)	
Speed	230 m/min (9055.1 ipm)
Feed	0.6 mm/rev (0.0 ipr)
Depth of cut	10 mm (0.4 inch)
Chip Removal rate	1418 cm^3/min (86.5 $inch^3$/min)

Tapping	
Cutting Tool	M33 x P3.5
Cutting speed	15 m/min (590.6 ipm)
Feed	3.5 mm/rev (0.1 ipr)

U-Drill (3-axis)	
Cutting Tool	Ø 30 mm (1.2 inch)
Spindle Load	2000 m/min
Feed	0.12 mm/rev (0.0 ipr)
Chip Removal rate	171 cm^3/min (10.4 $inch^3$/min)



End mill (Low Speed)	
Cutting Tool	Ø 32 mm (1.3 inch)
Spindle Load	30 m/min
Feed	90 mm/min
Chip Removal rate	105 cm^3/min

End mill (High Speed)	
Cutting Tool	Ø 25 mm (1.0 inch)
Spindle Load	220 m/min (787.4 ipm)
Feed	1000 mm/min (39.4 ipm)
Chip Removal rate	175 cm^3/min (10.7 $inch^3$/min)

Helical End Milling	
Cutting Tool	Ø 25 mm (1.0 inch)
Spindle Load	240 m/min (9448.8 ipm)
Feed	800 mm/min (31.5 ipm)
Chip Removal rate	100 cm^3/min (6.1 $inch^3$/min)

* The results, indicated in this catalogue are provides as example. They may not be obtained due to differences in cutting conditions and environmental conditions during measurement.

Standard/Optional features

● Standard ○ Option △ Contact DOOSAN X N/A

	Division	Items			PUMA 600 Ⅱ series		PUMA 700 Ⅱ series		PUMA 800 Ⅱ series		
					2-axis / M	Y	2-axis / M	Y	2-axis / M	Y	Big bore(B/LB)
1	Chuck	None			●	●	●	●	●	●	●
2		18 inch			○	○	X	X	X	X	X
3		21 inch			○	○	X	X	X	X	X
4		24 inch			X	X	○	○	X	X	X
5		32 inch			X	X	X	X	○	○	X
6		32INCH (OUT DIAMETER Ø800)			○	○	○	○	X	X	X
7		40INCH (OUT DIAMETER Ø1000)			X	X	○ (XL/XLM)	○	○ (XL/XLM)	○	X
8	Jaw	Soft Jaws			○	○	○	○	○	○	○
9		Hardened & ground hard jaws			○	○	○	○	○	○	○
10	Chucking option	Single pressure chucking			●	●	●	●	●	●	●
11		Dual pressure chucking			○	○	○	○	○	○	○
12		Chuck clamp confirmation			○	○	○	○	○	○	○
13	Steady rest	Specification	MANUAL STEADY REST	Ø35 ~ Ø330 mm (Ø1.4 ~ Ø13.0 inch)	○	○	○	○	○	○	○
14				Ø300 ~ Ø450 mm (Ø11.8 ~ Ø17.7 inch)	○	○	○	○	○	○	○
15				Ø300 ~ Ø590 mm (Ø11.8 ~ Ø23.2 inch)	○ (std./M/L/LM)	○ (LY)	○ (std./M/L/LM)	○ (LY)	○ (std./M/L/LM)	○ (LY)	○ (B)
16				Ø380 ~ Ø720 mm (Ø15.0 ~ Ø28.3 inch)	○ (std./M/L/LM)	○ (LY)	○ (std./M/L/LM)	○ (LY)	○ (std./M/L/LM)	○ (LY)	○ (B)
17				Ø420 ~ Ø570 mm (Ø16.5 ~ Ø22.4 inch)	○ (XL/XLM)	○ (XLY)	○ (XL/XLM)	○ (XLY)	○ (XL/XLM)	○ (XLY)	○ (LB)
18				Ø570 ~ Ø720 mm (Ø22.4 ~ Ø28.3 inch)	○ (XL/XLM)	○ (XLY)	○ (XL/XLM)	○ (XLY)	○ (XL/XLM)	○ (XLY)	○ (LB)
19			Hydraulic	SLU-4 (Ø30 ~ Ø245 mm) (Ø1.4 ~ Ø9.6 inch)	○	○	○	○	○	○	○
20				SLU-5 (Ø45 ~ Ø310 mm) (Ø1.8 ~ Ø12.2 inch)	○	○	○	○	○	○	○
21				SLU-5.1 (Ø85 ~ Ø350 mm) (Ø3.3 ~ Ø13.8 inch)	○	○	○	○	○	○	○
22				K-5 (Ø80 ~ Ø390 mm) (Ø3.1 ~ Ø15.4 inch)	○	○	○	○	○	○	○
23				SLU-4 (Ø30 ~ Ø245 mm) (Ø1.4 ~ Ø9.6 inch)	○	○	○	○	○	○	○
24			PROGRAMMABLE STEADY REST	SLU-5 (Ø45 ~ Ø310 mm) (Ø1.8 ~ Ø12.2 inch)	○	○	○	○	○	○	○
25				SLU-5.1 (Ø85 ~ Ø350 mm) (Ø3.3 ~ Ø13.8 inch)	○	○	○	○	○	○	○
26				K-5 (Ø80 ~ Ø390 mm) (Ø3.1 ~ Ø15.4 inch)	○	○	○	○	○	○	○
27				K-5.1 (Ø100 ~ Ø410 mm) (Ø3.9 ~ Ø16.1 inch)	○	○	○	○	○	○	○
28				RX-6 (Ø100 ~ Ø520 mm) (Ø3.9 ~ Ø20.5 inch)	○	○	○	○	○	○	○
29				AX-7E (Ø45 ~ Ø320 mm) (Ø1.8 ~ Ø0.6 inch)	○	○	○	○	○	○	○
30				AX-8E (Ø85 ~ Ø360 mm) (Ø3.3~ Ø14.2 inch)	○	○	○	○	○	○	○
31				AX-8.5I (Ø100 ~ Ø430 mm) (Ø3.9 ~ Ø16.9 inch)	○	○	○	○	○	○	○
32				AX-9I (Ø100 ~ Ø510 mm) (Ø3.9 ~ Ø20.1 inch)	○	○	○	○	○	○	○
33		Type	Single		○	○	○	○	○	○	○
34			Twin		○	○	○	○	○	○	○
35			Double		○	○	○	○	○	○	○
36	Tailstock	Programmable type			●	●	●	●	●	●	●
37		Live center			●	●	●	●	●	●	●
38		Built-in dead center			○	○	○	○	○	○	○
39	Coolant pump (60/50Hz)	4.5/3.0 bar			●	●	●	●	●	●	●
40		7/5, 10/7, 14.5/10, 28/19.5, 70/70 bar			○	○	○	○	○	○	○
41		Coolant level switch : Sensing level - Low			○	○	○	○	○	○	○
42	Coolant options	Oil skimmer			○	○	○	○	○	○	○
43		Coolant chiller			○	○	○	○	○	○	○
44		Coolant pressure switch			○	○	○	○	○	○	○
45		Coolant gun			○	○	○	○	○	○	○
46	Chip disposal	Chip conveyor (Right side)			○	○	○	○	○	○	○
47		Chip bucket			○	○	○	○	○	○	○
48		Air blower for chuck			○	○	○	○	○	○	○
49		Mist collector interface (Duct only)			○	○	○	○	○	○	○
50		Integrated mist collector			○	○	○	○	○	○	○
51	Measurement & Automation	Tool setter	Manual		○	○	○	○	○	○	○
52			Automatic		○	○	○	○	X	X	X
53		Auto door			○	○	○	○	○	○	○
54		Automatic tool changer			○	○	○	○	X	X	X
55	Others	Doosan Tool load monitoring system			○	○	○	○	○	○	○
56		Signal tower			○	○	○	○	○	○	○
57		Air gun			○	○	○	○	○	○	○
58		Automatic power off			○	○	○	○	○	○	○
59		Air unit for air chuck	Single		X	X	X	X	O	X	○
60			Twin		X	X	X	X	O	X	○
61		Quick change tooling(CAPTO)			○	○	○	○	○	○	○
62		Sketch-turn S/W			○	○	○	○	○	○	○
63	Standard Accessories	FOUNDATION BOLT FOR ANCHORING			● (L/LM/XL/XLM)	● (LY/XLY)	● (L/LM/XL/XLM)	● (LY/XLY)	● (L/LM/XL/XLM)	● (LY/XLY)	● (LB)

* Please contact DOOSAN to select detailed steady rest specifications.
** TWIN CHUCKING for PUMA 700/L/XL/M/LM/XLM/LY/XLY Ⅱ, PUMA 800/L/XL/M/LM/XLM/LY/XLY/B/LB Ⅱ: Please contact Doosan.

Peripheral equipments

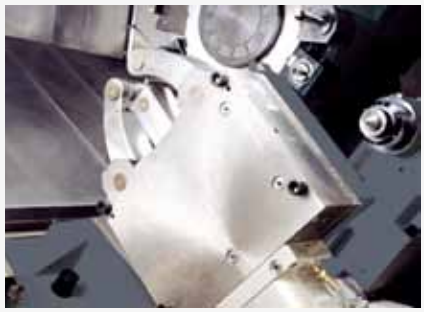
Long boring bar option

The long boring bar option allows you to easily machine deep holes to minimize cycle time. Please consult with Doosan specialist for details.

Twin chucking option

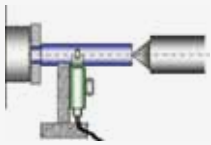
For more stable pipe threading process, twin chucking option(manual or pneumatic) is available. Please consult with Doosan specialist for details.

Steady rest option

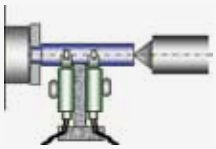


For turning a part with extensive length, various types of hydraulic steady rests(Single, Double or Twin type) are available.

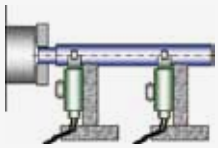
SINGLE



DOUBLE



TWIN



Quick change CAPTO option

The Quick Change Tool system simplifies tool change operation. Recommended for users who need to change tools frequently or reduce the set-up time.

Chip conveyor (Right side) option

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), 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.

Coolant tank

Standard bed: 470L
L: 570L (LY: 600L)
XL: 770L

Doosan's ergonomic roller coolant tank design, allows users to easily replace and refill coolant. Roller on the coolant tank allows users to simply take out and put it back in the machine like a drawer unit.

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.

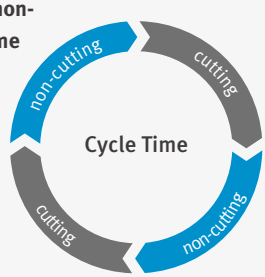
SKETCH-TURN option

DOOSAN Conversational programming software for PC
- Easy to learn for beginners
- Time savings in programming
- Reduce processing cycle time

Easy Operation Package

Increase Productivity

Reduced non-cutting time by 10%



Minimizes non-cutting time to further improve productivity.

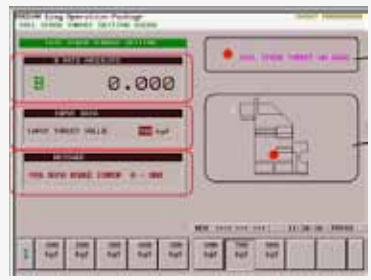
Operation rate

Function allows users to easily keep track of machine operating hours and the number of completed parts.

Tool load monitoring option

This function detects overload on tools, caused by wear and damage, and triggers an alarm to minimize damage.

Tail stock thrust force setting option



This function allows users to easily setup tailstock thrust force on the screen.

SIEMENS S828D

SIEMENS CNC optimized for DOOSAN machine tools maximizes users' productivity.

15.6 inch screen + New OP

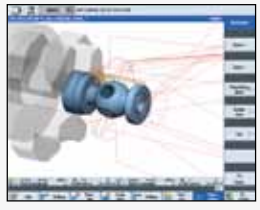
The newly-designed operation panel enhances operating convenience by incorporating common-design buttons and layout, and features the Qwerty keyboard for fast and easy operation.

15.6-inch display

- USB (standard)
- QWERTY Keyboard (standard)

Conversational Convenient function

The machining monitoring function developed on the basis of the Shop Turn – an interactive machining support function of SIEMENS – provides users with cutting, servicing and maintenance screens for easy and convenient machine operation.



Cutting and operation support function

This function shows a cutting and tool path simulation of a cutting program on a real-time basis.

[offset]
⬇
[operating parameter]
⬇
[attachment setting]
⬇
[Collision avoidance]

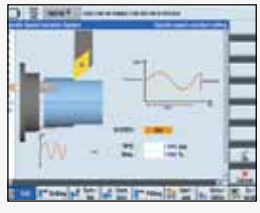
Operation safety function

Spindle and Turret's interference could be checked before crash. So that it Protect operator's mistake.
[offset] [operating parameter]
[attachment setting] [Collision avoidance]

[offset]
⬇
[operating parameter]
⬇
[TC service]

Maintenance and service convenience function

Maintenance and service of major units and peripheral devices, timer setting and parts counter setting can be easily carried out on a convenient screen.



[various]
⬇
[attachment]
⬇
[DSSV]

Machining accuracy improvement

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

Before applying the function

After applying the function

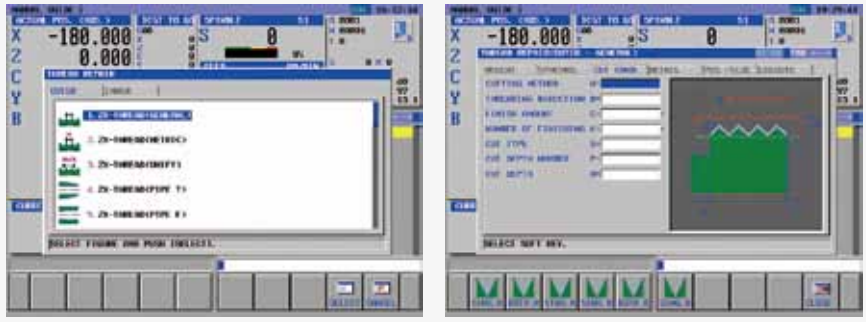
Stable threading performance

All PUMA 600/ 700/ 800 II series (2-Axis* to Y-Axis) are capable of threading work.

*In order to re-machine threads or perform arbitrary speed threading on a 2-Axis machine, additional optional devices have to be selected.

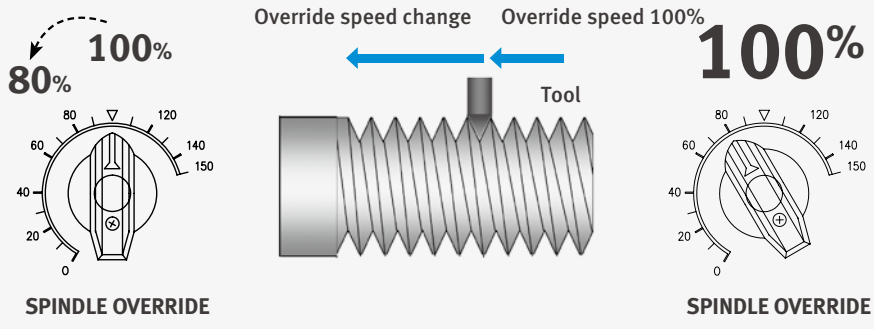
Threading repair function

This function allows users to repair thread even when original program is not available and this is a standard Fanuc NC function.



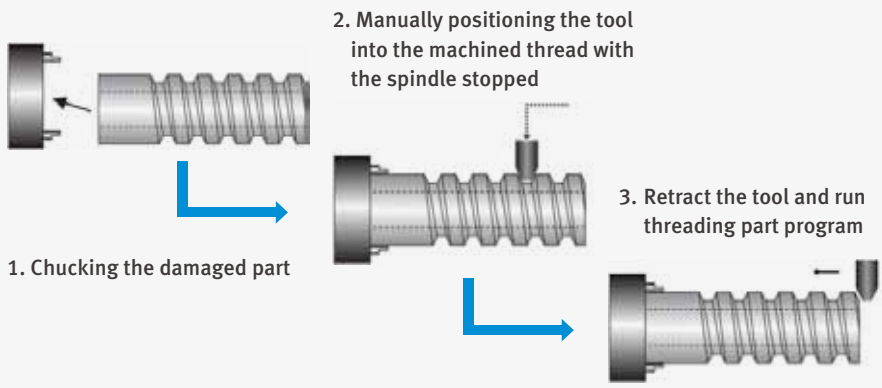
Arbitrary speed threading option

This function allows users to control spindle speed in order to set it at an ideal machining condition to keep the best thread quality.



Re-machining function * Available when selecting “Arbitrary speed threading” option

This function allows users to re-machine damaged threads by using the existing program.

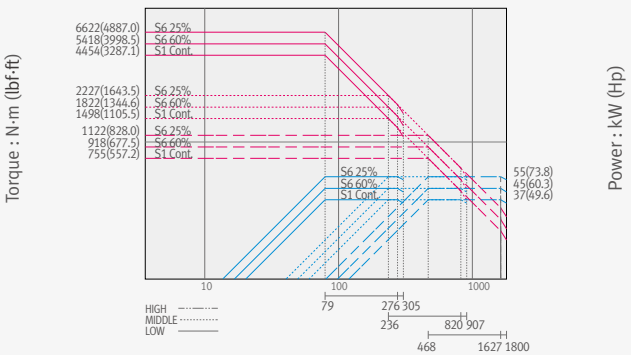


Power-Torque diagram

Spindle(FAUNC)

PUMA 600 Ⅱ series

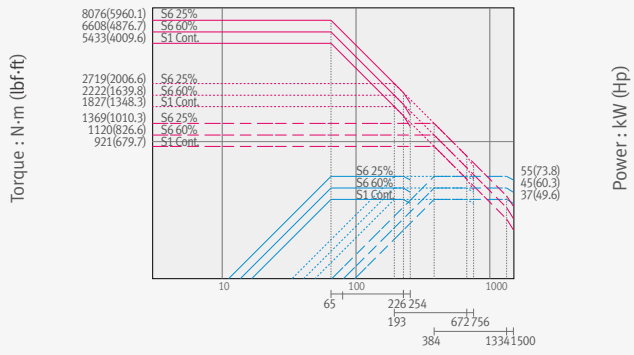
Max. spindle speed : 1800 r/min



Spindle speed : r/min

PUMA 700 Ⅱ series

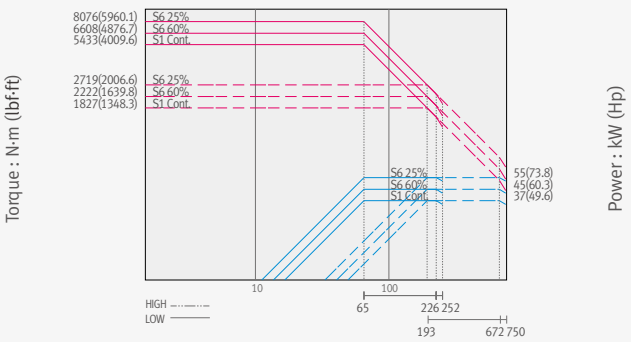
Max. spindle speed : 1500 r/min



Spindle speed : r/min

PUMA 800 Ⅱ series

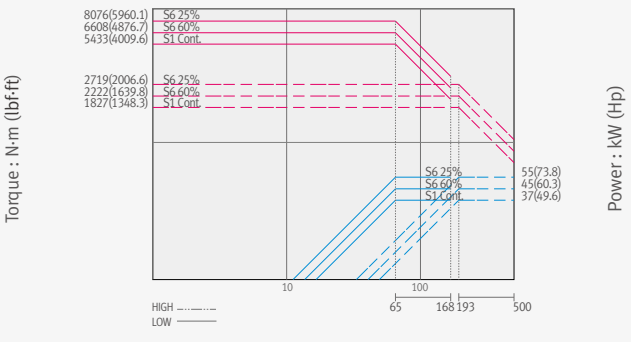
Max. spindle speed : 750 r/min



Spindle speed : r/min

PUMA 800B/LB Ⅱ

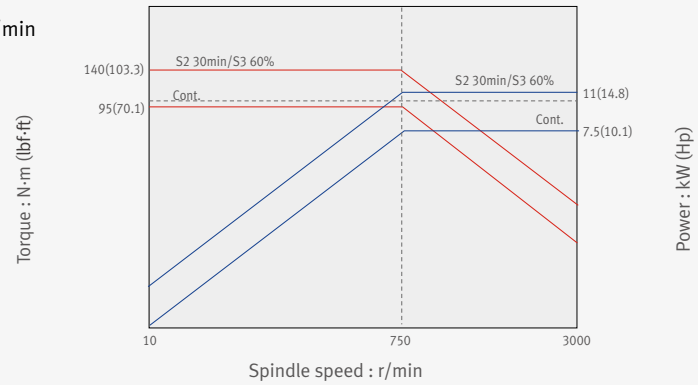
Max. spindle speed : 500 r/min



Spindle speed : r/min

Rotary tool

Max. rotary tool speed: 3000 r/min



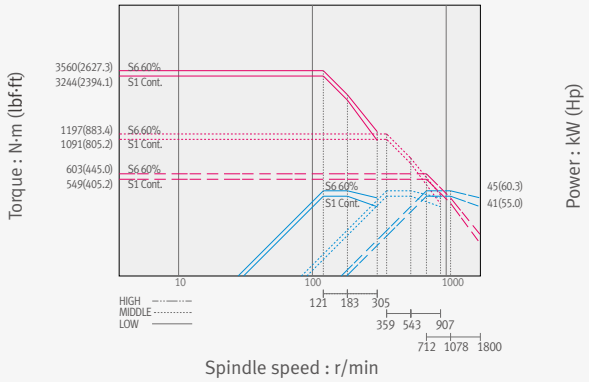
Spindle speed : r/min

Power-Torque diagram

Spindle(SIEMENS)

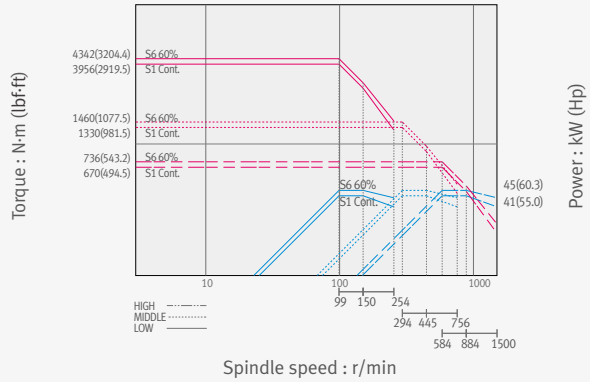
PUMA 600 Ⅱ series

Max. spindle speed : 1800 r/min



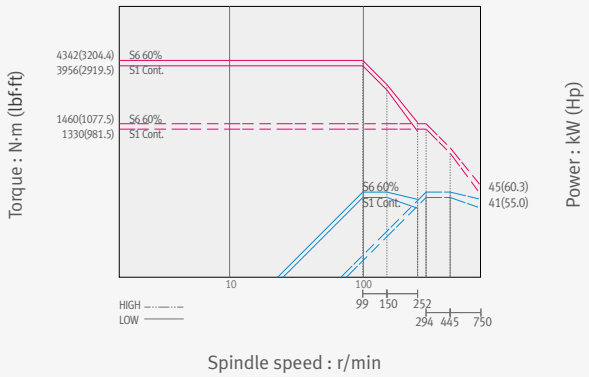
PUMA 700 Ⅱ series

Max. spindle speed : 1500 r/min



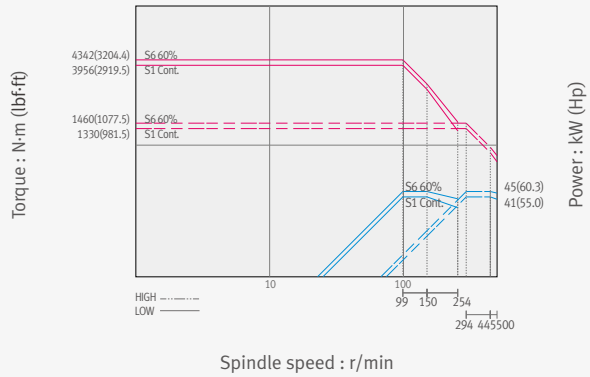
PUMA 800 Ⅱ series

Max. spindle speed : 750 r/min



PUMA 800B/LB Ⅱ

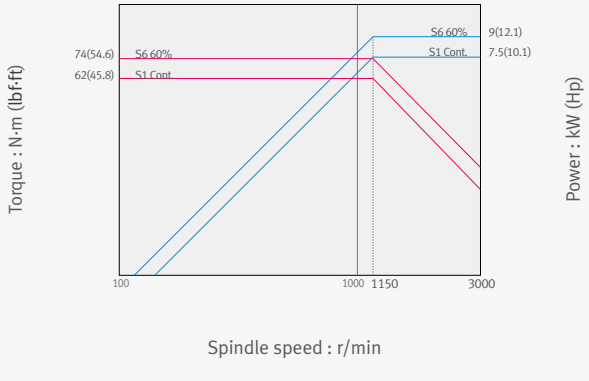
Max. spindle speed : 500 r/min



Rotary tool

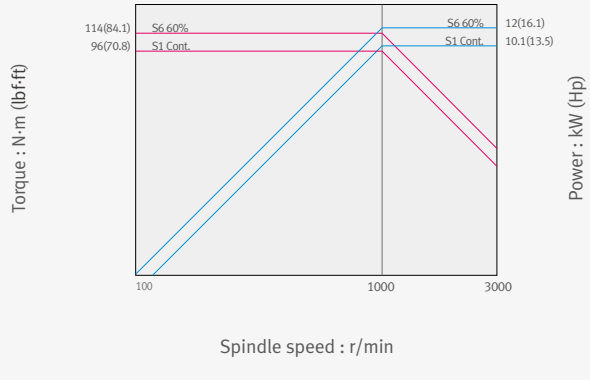
M/LM/XLM

Max. rotary tool speed : 3000 r/min



LY/XLY

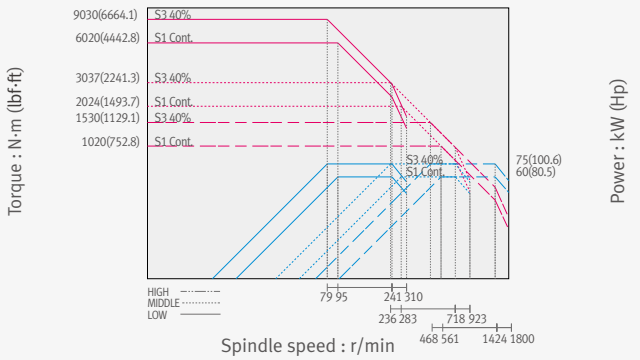
Max. rotary tool speed : 3000 r/min



Spindle option

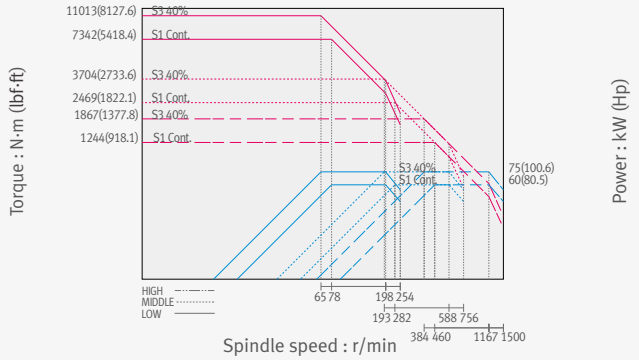
PUMA 600 Ⅱ series (FAUNC)

Max. spindle speed : 1800 r/min



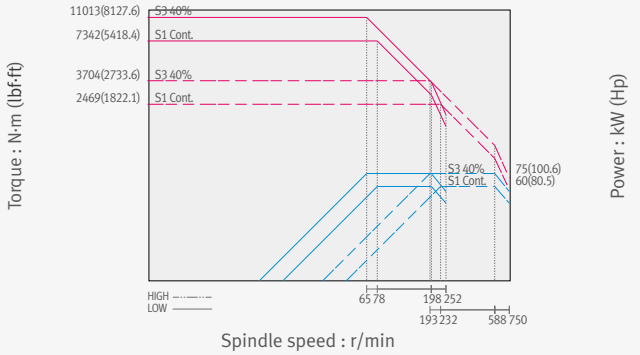
PUMA 700 Ⅱ series (FAUNC)

Max. spindle speed : 1500 r/min



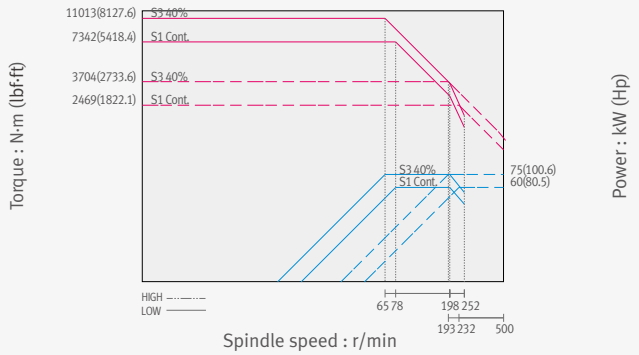
PUMA 800 Ⅱ series (FAUNC)

Max. spindle speed : 750 r/min



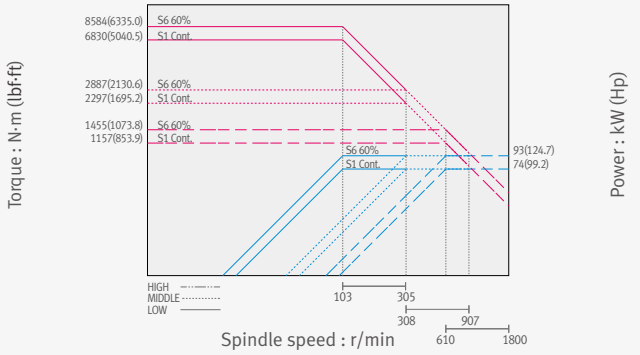
PUMA 800B/LB Ⅱ (FAUNC)

Max. spindle speed : 500 r/min



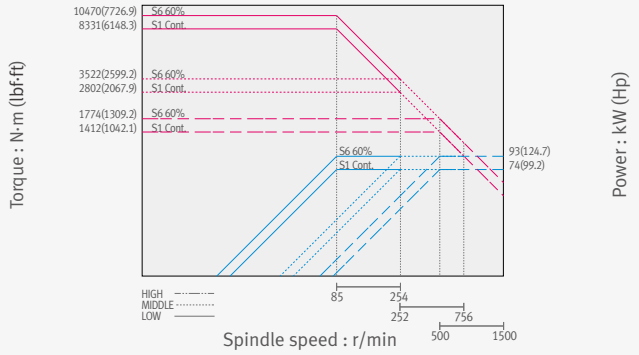
PUMA 600 Ⅱ series (SIEMENS)

Max. spindle speed : 1800 r/min



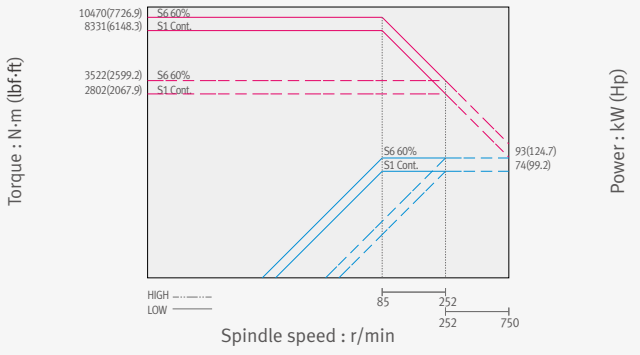
PUMA 700 Ⅱ series (SIEMENS)

Max. spindle speed : 1500 r/min



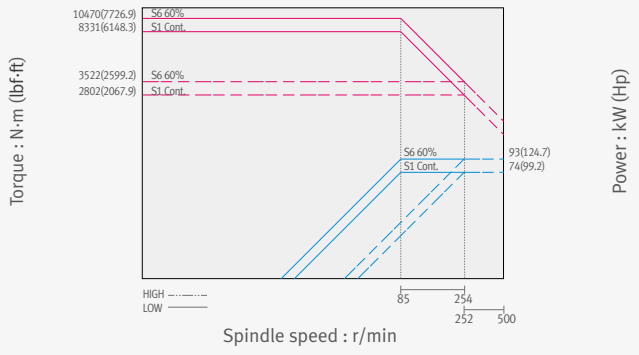
PUMA 800 Ⅱ series (SIEMENS)

Max. spindle speed : 750 r/min



PUMA 800B/LB Ⅱ (SIEMENS)

Max. spindle speed : 500 r/min

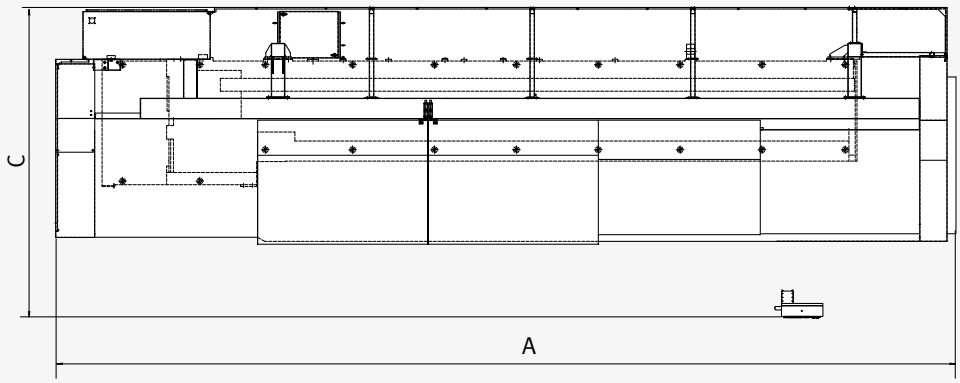


External dimensions

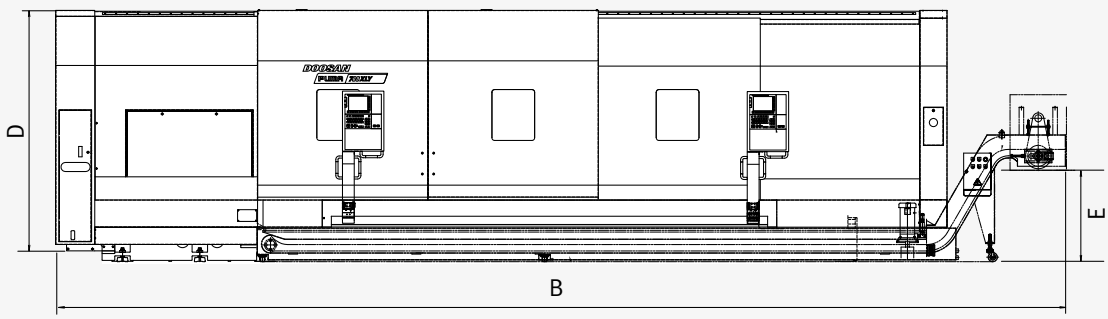
PUMA 600/700/800 Ⅱ series

Unit : mm (inch)

Top view



Front view



Unit : mm (inch)

Model	A (Length)	B* (Length with chip conveyor)	C (Width)	D (Height)	E
PUMA 600/700/800 Ⅱ [M]	5760 (226.8)	6911 (272.1)	3145 (123.8)	2780 (109.4)	1020 (40.2)
PUMA 600L/700L/800L Ⅱ [M]	7360 (289.8)	8510 (355.0)	2770 (109.1)	2590 (102.0)	1020 (40.2)
PUMA 600LY/700LY/800LY Ⅱ	7430 (292.5)	8592 (338.3)	3090 (121.7)	2770 (109.1)	1005 (39.6)
PUMA 600XL/700XL/800XL Ⅱ [M]	9860 (388.2)	11010 (433.5)	3090 (121.7)	2770 (109.1)	1020 (40.2)
PUMA 600XLY/700XLY/800XLY Ⅱ	9898 (389.7)	11112 (437.5)	3090 (121.7)	2770 (109.1)	1005 (39.6)
PUMA 800B Ⅱ	5760 (526.8)	6911 (272.1)	3145 (123.8)	2780 (109.4)	1020 (40.2)
PUMA 800LB Ⅱ	7360 (289.8)	8510 (355.0)	2770 (109.1)	2590 (102.0)	1020 (40.2)

* 500mm of a space is required to the right of the machine in order to install and remove chip conveyor.

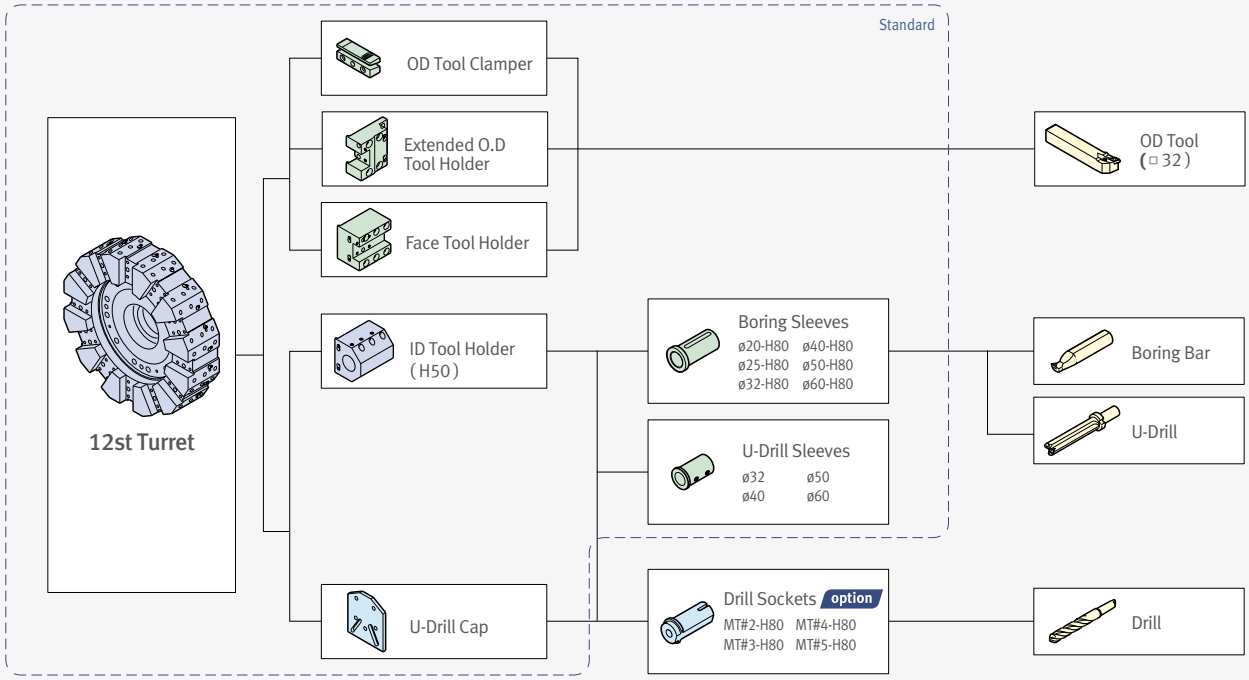
* Machine foundation : Anchoring is recommened to maintain accuracy over a long period of time, The anchor bolts and other related parts of foundation work are supplied ad standard items. Please consult with Doosan and sales technicians regarding ground and operating conditions.

* Some peripheral equipment can be placed in other places

Tooling system

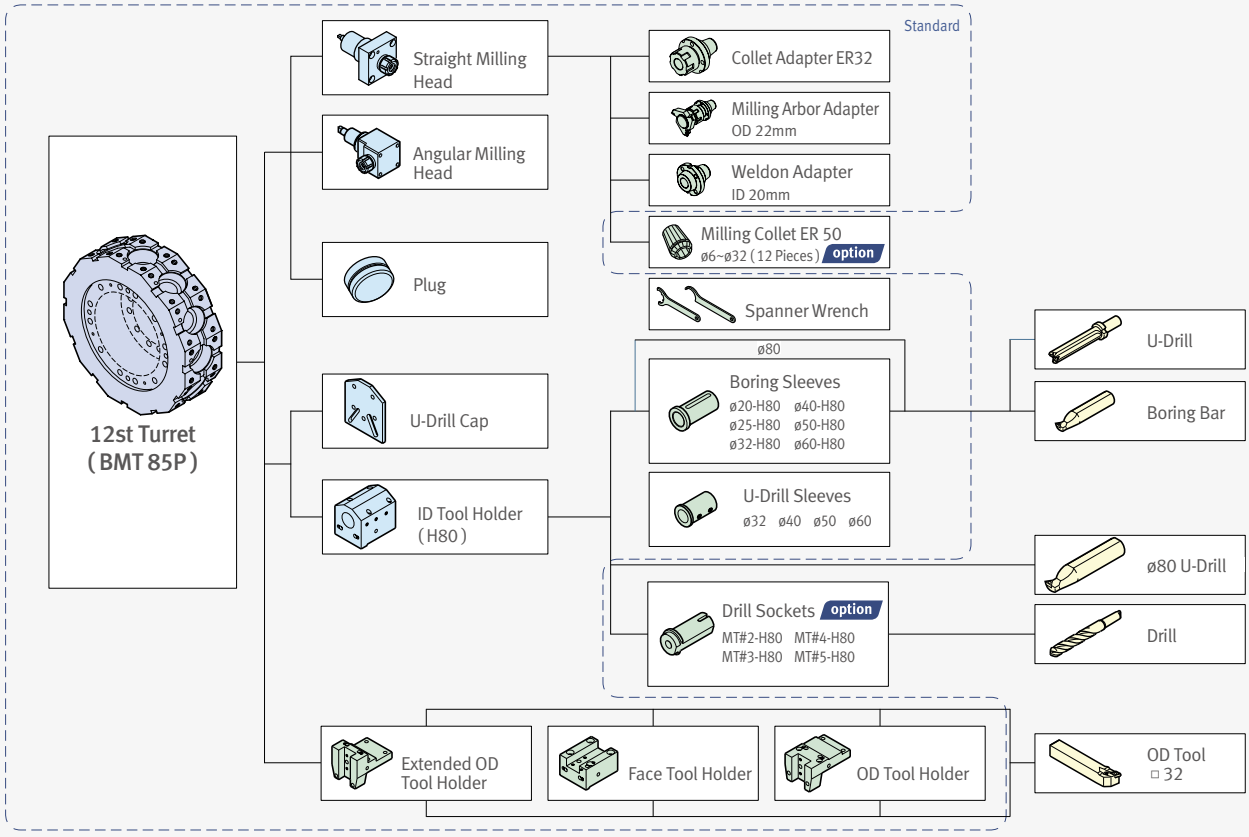
PUMA 600/700/800 Ⅱ [L/XL], PUMA 800B/LB Ⅱ

Unit : mm (inch)



PUMA 600M/700M/800M Ⅱ [LM/LY/XLM/XLY]

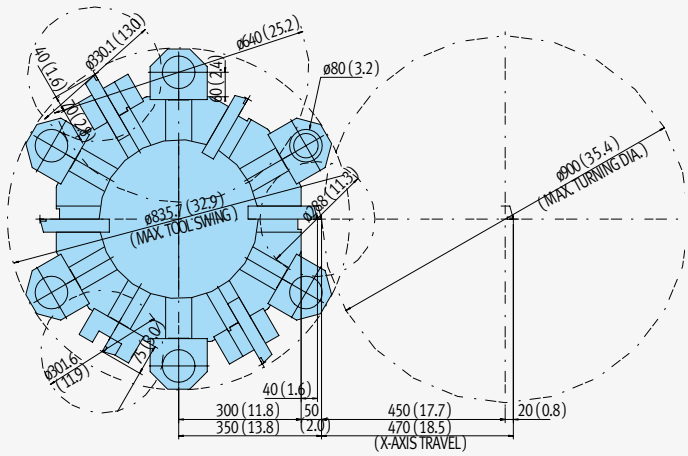
Unit : mm (inch)



Tool interference diagram

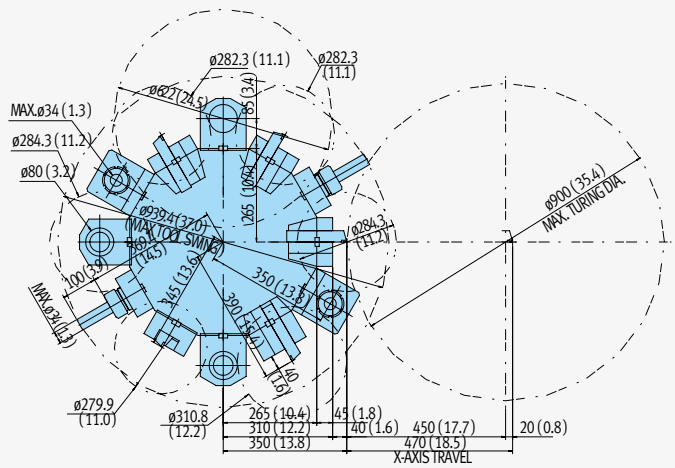
PUMA 600/700/800 Ⅱ [L/XL], PUMA 800B/LB Ⅱ

Unit : mm (inch)



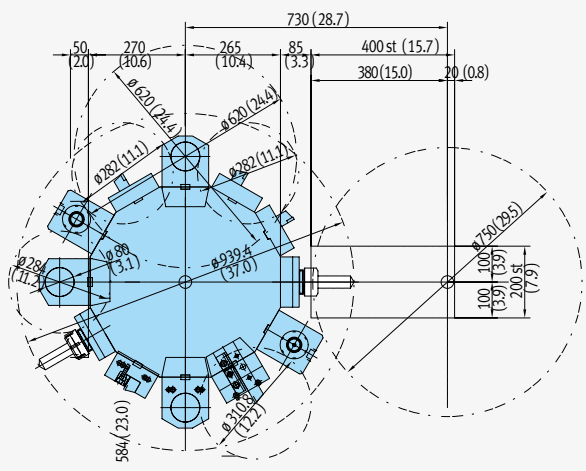
PUMA 600M/700M/800M Ⅱ [LM/XLM]

Unit : mm (inch)



PUMA 600LY/700LY/800LY Ⅱ [XLY]

Unit : mm (inch)

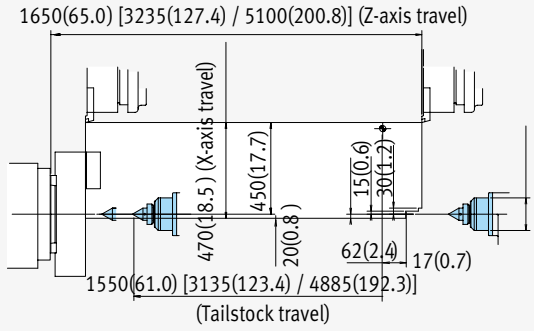


Working Range

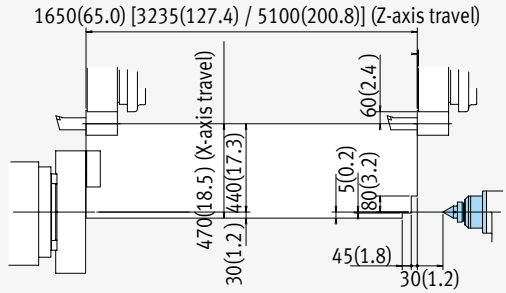
PUMA 600/700/800 Ⅱ [L/XL], PUMA 800B Ⅱ [LB]

Unit : mm (inch)

OD Tool Holder



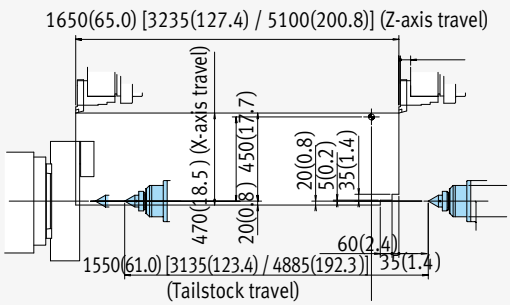
ID Tool holder



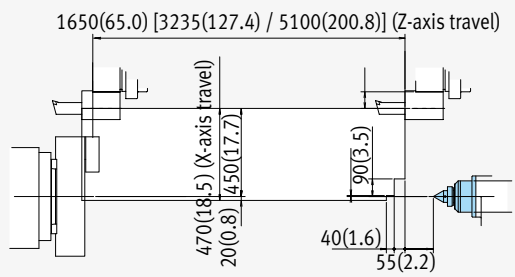
PUMA 600M/700M/800M Ⅱ [LM/XLM]

Unit : mm (inch)

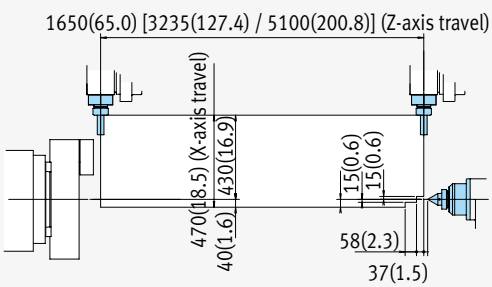
OD Tool Holder



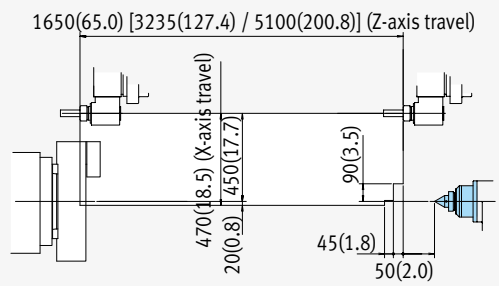
ID Tool Holder



Straight Milling Unit



Angular Milling Unit

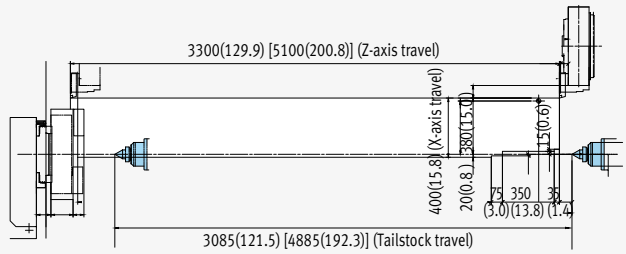


Working Range

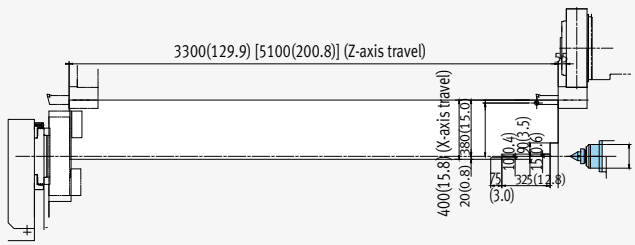
PUMA 600LY/700LY/800LY Ⅱ [XLY]

Unit : mm (inch)

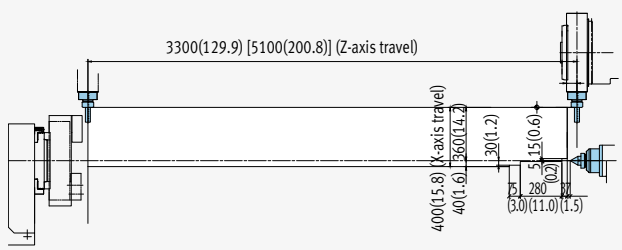
OD Tool Holder



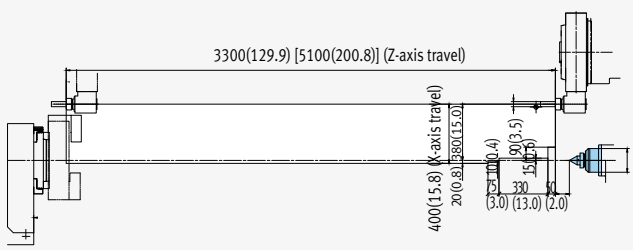
ID Tool Holder



Straight Milling Unit



Angular Milling Unit



Machine specifications

PUMA 600/700/800 Ⅱ series

Description			Unit	PUMA 600 Ⅱ [L/XL]	PUMA 600M Ⅱ [LM/XLM]	PUMA 600LY Ⅱ [XLY]
Capacity	Swing over bed		mm(inch)	1030(40.6) [1000(39.4)/1140(44.9)]		1140(44.9)
	Swing over saddle		mm(inch)	800(31.5) [800(31.5)/1000(39.4)]		1000(39.4)
	Recom. turning diameter		mm(inch)	600(23.6)		700(27.6)
	Max. turning diameter		mm(inch)	900(35.4)		750(29.5)
	Max. turning length		mm(inch)	1600(63) [3200(126)/5050(199)]		3250(128) [5050(199)]
	Chuck size		inch	18		
	Bar working diameter		mm(inch)	117(4.6)		
Travels	Travel distance	X-axis	mm(inch)	470(18.5)		400(15.7)
		Y-axis	mm(inch)	-		200 (7.9)
		Z-axis	mm(inch)	1650(65) [3235(127)/5100(201)]		3300(130) [5100(201)]
Feedrates	Rapid traverse rate	X-axis	m/min(ipm)	12(472.4)		
		Y-axis	m/min(ipm)	-		6(236.2)
		Z-axis	m/min(ipm)	16(630.0) [10(393.7)/10(393.7)]		10(393.7)
Main Spindle	Max. spindle speed		r/min	1800		
	Main spindle motor power	FANUC (S6 25%/ S6 60% / S1 Cont.)	kW(Hp)	55/45/37(73.8/60.3/49.6) {75/60(100.1/80.5) (S3 60% / S1 Cont.)}*		
		SIEMENS (S6 60% / S1 Cont.)		45/41 {93/74}* (60.3/55.0 {124.7/99.2}) (S6 60% / S1 Cont.)		
	Max. spindle torque	FANUC	N·m(lbf·ft)	6622 {9030}* (4887.0{6664.1})		
		SIEMENS		3560 {8584}* (2627.3 {6335.0})		
	Spindle nose		ASA	A2-15		
	Spindle bearing diameter (Front)		mm(inch)	200(7.9)		
	Spindle through hole diameter		mm(inch)	152(6.0)		
	Min. spindle indexing angle (C-axis)		deg	-	0.001	
Turret	No. of tool stations		ea	12		
	OD tool size		mm(inch)	32 x 32 (1.3 x 1.3)		
	Max. boring bar size		mm(inch)	80 (3.1)		
	Turret indexing time (1 station swivel)		s	0.25		
	Max. rotary tool speed		r/min	-	3000	
	Rotary tool motor power	FANUC (30min)	kW(hp)	-	11(14.8)	
		SIEMENS (S6 60%)	-	-	9(12.1)	12(16.1)
Tailstock	Tailstock travel		mm(inch)	1550(61) [3135(123)/4885(192)]		3085(121) [4885(192)]
	Quill diameter		mm(inch)	160(6.3) [160(6.3)/180(7.1)]		180(7.1)
	Quill travel		mm(inch)	150(5.9)		150(5.9)
	Quill bore taper		MT	#6 {#6(Dead)}*		
Power Source	Electric power supply (rated capacity)		kVA	64.44	68.60	78
Machine Dimensions	Length		mm(inch)	5760(226.8) [7360(289.8)/9860(388.2)]		7430(292.5) [9898(389.7)]
	Width		mm(inch)	3145(123.8) [2770(109.1)/3090(121.7)]		3090(121.7)
	Height		mm(inch)	2780(109.4) [2590(102.0)/2770(109.1)]		2770(109.1)
	Weight		kg(lb)	16300(35953) [21800(48060)/ 25600(56438)]	16500(36376) [22000(48502)/ 25800(56879)]	23000(50706) [26000(57320)]
Control	NC system		-	DOOSAN Fanuc i Plus / SIEMENS S828D		

* { } : Option

Machine specifications

Description			Unit	PUMA 700 Ⅱ [L/XL]	PUMA 700M Ⅱ [LM/XLM]	PUMA 700LY Ⅱ [XLY]	PUMA 800 Ⅱ [L/XL]	PUMA 800M Ⅱ [LM/XLM]	PUMA 800LY Ⅱ [XLY]	PUMA 800B Ⅱ [LB]
Capacity	Swing over bed		mm (inch)	1030(40.6) [1000(39.4)/1140(44.9)]		1140(44.9)	1030(40.6) [1000(39.4)/1140(44.9)]		1140(44.9)	1030(40.6) [1000(39.4)]
	Swing over saddle		mm (inch)	800(31.5) [800(31.5)/1000(39.4)]		1000(39.4)	800(31.5) [800(31.5)/1000(39.4)]		1000(39.4)	800(31.5)
	Recom. turning diameter		mm (inch)	700(27.6)			800(31.5)		700(27.6)	800(31.5)
	Max. turning diameter		mm (inch)	900(35.4)		750(29.5)	900(35.4)		750(29.5)	900(35.4)
	Max. turning length		mm (inch)	1600(63) [3200(126)/5050(199)]		3250(128) [5050(199)]	1600(63) [3200(126)/5050(199)]		3250(128) [5050(199)]	1600(63) [3200(126)]
	Chuck size		inch	24			32			Order made
	Bar working diameter		mm (inch)	164(6.5)			Depending on chuck spec.			
Travels	Travel distance	X-axis	mm (inch)	470(18.5)		400(15.7)	470(18.5)		400(15.7)	470(18.5)
		Y-axis	mm (inch)	-		200 (7.9)	-		200 (7.9)	-
		Z-axis	mm (inch)	1650(65) [3235(127)/5100(201)]		3300(130) [5100(201)]	1650(65) [3235(127)/5100(201)]		3300(130) [5100(201)]	1650(65) [3235(127)]
Feedrates	Rapid traverse rate	X-axis	m/min (ipm)	12(472.4)			12(472.4)			
		Y-axis	m/min (ipm)	-		6(236.2)	-		6(236.2)	-
		Z-axis	m/min (ipm)	16(630.0) [10(393.7)/10(393.7)]		10(393.7)	16(630.0) [10(393.7)/10(393.7)]		10(393.7)	16(630.0) [10(393.7)]
Main Spindle	Max. spindle speed		r/min	1500			750			500
	Main spindle motor power	FANUC (S6 25%/ S6 60% / S1 Cont.)	kW (Hp)	55/45/37(73.8/60.3/49.6) {75/60(100.1/80.5) (S3 60% / S1 Cont.)}*			55/45/37(73.8/60.3/49.6) 75/60(100.1/80.5) (S3 60% / S1 Cont.)}*			
		SIEMENS (S6 60% / S1 Cont.)		45/41 {93/74}* (60.3/55.0 {124.7/99.2})			45/41 {93/74}* (60.3/55.0 {124.7/99.2}) (S6 60% / S1 Cont.)			
	Max. spindle torque	FANUC	N·m (lbf·ft)	8076(5960.1) {11013(8127.6)}*			8076(5960.1) {11013(8127.6)}*			
		SIEMENS		4342 {10470}* (3204.4 {7726.9})			4342 {10470}* (3204.4 {7726.9})			
	Spindle nose		ASA	A1-15			A1-20			ISO 702-4 NO.20
	Spindle bearing diameter (Front)		mm (inch)	240(9.4)			400(15.7)			440(17.3)
	Spindle through hole diameter		mm (inch)	181(7.1)			320(12.6)			375(14.8)
	Min. spindle indexing angle (C-axis)		deg	-	0.001		-	0.001 {1}	0.001	-
Turret	No. of tool stations		ea	12			12			
	OD tool size		mm (inch)	32 x 32 (1.3 x 1.3)			32 x 32 (1.3 x 1.3)			
	Max. boring bar size		mm (inch)	80 (3.1)			80 (3.1)			
	Turret indexing time (1 station swivel)		s	0.25			0.25			
	Max. rotary tool speed		r/min	-	3000		-	3000		-
	Rotary tool motor power	FANUC (30min)	kW (hp)	-	11(14.8)		-	11(14.8)		-
		SIEMENS (S6 60%)	-	-	9(12.1)	12(16.1)	-	9(12.1)	12(16.1)	-
Tailstock	Tailstock travel		mm (inch)	1550(61) [3135(123)/4885(192)]		3085(121) [4885(192)]	1550(61) [3135(123)/4885(192)]		3085(121) [4885(192)]	1550(61) [3135(123)]
	Quill diameter		mm (inch)	160(6.3) [160(6.3)/180(7.1)]		180(7.1)	160(6.3) [160(6.3)/180(7.1)]		180(7.1)	160(6.3)
	Quill travel		mm (inch)	150(5.9)		150(5.9)	150(5.9)			150(5.9)
	Quill bore taper		MT	#6 {#6(Dead)}*			#6 {#6(Dead)}*			
Power Source	Electric power supply (rated capacity)		kVA	64.44	68.6	78	64.44	68.6	78	64.44
Machine Dimensions	Length		mm (inch)	5760(226.8) [7360(289.8)/9860(388.2)]		7430(292.5) [9898(389.7)]	5760(226.8) [7360(289.8)/9860(388.2)]		7430(292.5) [9898(389.7)]	5760(226.8) [7360(289.8)]
	Width		mm (inch)	3145(123.8) [2770(109.1)/3090(121.7)]		3090(121.7)	3145(123.8) [2770(109.1)/3090(121.7)]		3090(121.7)	3145(123.8) [2770(109.1)]
	Height		mm (inch)	2780(109.4) [2590(102.0)/2770(109.1)]		2770(109.1)	2780(109.4) [2590(102.0)/2770(109.1)]		2770(109.1)	2780(109.4) [2590(102.0)]
	Weight		kg(lb)	16300(35953) [21800(48060)/ 25800(56879)]	16500(36376) [21800(48060)/ 26000(57320)]	23000(50706) [26000(57320)]	16300(35953) [21800(48060)/ 25800(56879)]	16500(36376) [22000(48502)/ 26000(57320)]	23000(50706) [26000(57320)]	16300(35953) [21800(48060)]
Control	NC system		-							

* { } : Option

NC unit specifications

FANUC

● Standard ○ Option X N/A

No.	Division	Item	Spec.	DOOSAN Fanuc i Plus		
				2-axis	M	Y
1	Controlled axis	Controlled axes		2 (X,Z)	3 (X,Z,C)	4 (X,Z,C,Y)
2		Simultaneously controlled axes		2 axes	3 axes	4 axes
3		Cs contouring control		X	●	●
4		Torque control		●	●	●
5		HRV2 control		●	●	●
6		Inch/metric conversion		●	●	●
7		Stored stroke check 1		●	●	●
8		Stored stroke check 2,3		●	●	●
9		Stored limit check before move		●	●	●
10		Chamfering on/off		●	●	●
11		Unexpected disturbance torque detection function		●	●	●
12		Position switch		●	●	●
13	Operation	DNC operation	Included in RS232C interface	●	●	●
14		DNC operation with memory card		●	●	●
15		Tool retract and recover		○	○	○
16		Wrong operation prevention		●	●	●
17		Dry run		●	●	●
18		Single block		●	●	●
19		Reference position shift		●	●	●
20		Handle interruption		○	○	○
21		Incremental feed	x1,x10,x100	●	●	●
22		Manual handle retrace		○	○	○
23		Active block cancel		○	○	○
24	Interpolation functions	Nano interpolation		●	●	●
25		Linear interpolation		●	●	●
26		Circular interpolation		●	●	●
27		Polar coordinate interpolation		X	●	●
28		Cylindrical interpolation		X	●	●
29		Helical interpolation		X	○	●
30		Thread cutting, synchronous cutting		●	●	●
31		Multi threading		●	●	●
32		Thread cutting retract		●	●	●
33		Continuous threading		●	●	●
34		Variable lead thread cutting		●	●	●
35		Circular thread cutting		○	○	○
36		Polygon machining with two spindles		X	●	●
37		High-speed skip	Input signal is 8 points.	○	○	○
38		2nd reference position return	G30	●	●	●
39		3rd/4th reference position return		●	●	●
40	Feed function	Override cancel		●	●	●
41		AI contour control I		○	○	●
42		AI contour control II		○	○	○
43		Rapid traverse block overlap		●	●	●
44	Program input	Optional block skip	9 pieces	●	●	●
45		Absolute/incremental programming	Combined use in the same block	●	●	●
47		Diameter/Radius programming		●	●	●
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	X
52		Direct drawing dimension programming		●	●	●
53		G code system	A	●	●	●
54		G code system	B/C	●	●	●
55		Chamfering/Corner R		●	●	●

CNC Specifications

● Standard ○ Optional X Not applicable

No.	Division	Item	Spec.	DOOSAN Fanuc i Plus		
				2-axis	M	Y
56	Program input	Custom macro		●	●	●
57		Addition of custom macro common variables	#100 - #199, #500 - #999	●	●	●
59		Interruption type custom macro		●	●	●
60		Canned cycle		●	●	●
61		Multiple repetitive cycles	G70~G76	●	●	●
62		Multiple repetitive cycles II	Pocket profile	●	●	●
63		Canned cycle for drilling		●	●	●
64		Automatic corner override		X	X	X
65		Coordinate system shift		●	●	●
66		Direct input of coordinate system shift		●	●	●
67		Pattern data input		●	●	●
68	Operation Guidance Function	EZ Guide i (Conversational Programming Solution)		● *1)	● *1)	● *1)
69		iHMI with Machining Cycle		○ *2)	○ *2)	○ *2)
70		EZ Operation package		●	●	●
71	Auxiliary/Spindle speed function	Constant surface speed control		●	●	●
72		Spindle override	0 - 150%	●	●	●
73		Spindle orientation		●	●	●
74		Rigid tap		●	●	●
75		Arbitrary speed threading		○	○	○
76	Tool function/ Tool compensation	Tool offset pairs	64-pairs	X	X	X
77			Tool offset pairs	X	X	X
78			Tool offset pairs	○	○	○
79			Tool offset pairs	X	X	X
80			Tool offset pairs	X	X	X
81			Tool offset pairs	X	X	X
83		Tool offset		●	●	●
84		Y-axis offset		X	X	●
85		Tool radius/Tool nose radius compensation		●	●	●
86		Tool geometry/wear compensation		●	●	●
87		Automatic tool offset	G36/G37	●	●	●
88		Direct input of offset value measured B		●	●	●
89		Tool life management		●	●	●
90	Accuracy compensation function	Backlash compensation for each rapid traverse and cutting feed		●	●	●
91	Editing operation	Part program storage size & Number of registerable programs	640M(256KB)_500 programs	X	X	X
92			1280M(512KB)_1000 programs	X	X	X
93			2560M(1MB)_1000 programs	X	X	X
94			5120M(2MB)_1000 programs	●	●	●
95		Program protect		●	●	●
96		Password function		●	●	●
97		Playback		●	●	●
98	Data input/ output	Fast data server		○	○	○
99		External data input		●	●	●
100		Memory card input/output		●	●	●
101		USB memory input/output		●	●	●
102		Automatic data backup		●	●	●
103	Interface function	Embedded Ethernet		●	●	●
104		Fast Ethernet		○	○	○
105	Others	Display unit	15" color LCD	●	●	●
106			15" color LCD with Touch Panel	○	○	○
107		Robot interface	with PMC I/O module	○	○	○
108			with PROFIBUS-DP	○	○	○

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

SIEMENS

● Standard ○ Optional X Not applicable

No.	ITEM		Spec.	S828D
1	Axes control	Controlled axes R: Milling spindle	2 axis	X, Z, SP
2			M-type	X, Z, C, R
3		Simultaneously controlled axes	Positioning(G00)/Linear interpolation(G01) : 3 axes Circular interpolation(G02, G03) : 2 axes	●
4		Backlash compensation		●
5		Leadscrew error compensation		●
6		Measuring system error compensation		●
7		Feedforward control	velocity-dependent	●
8		Follow up mode		●
9		Programmable acceleration		●
10		Emergency stop / overtravel		●
11		Least command increment	0.001mm (0.0001 inch)	●
12		Least input increment	0.001mm (0.0001 inch)	●
13		Maximum commandable value	±99999.999mm (±3937 inch)	●
14		Machine lock (PRT)		●
15		Absolute encoder		●
16	Interpolation & Feed function	Dry run		●
17		Feedrate/Rapid override	0 - 120 %	●
18		Reference point return	G75 FP=1	●
19		2nd reference point return	G75 FP=2	●
20		3rd / 4th reference return	G75 FP=3, 4	●
21		Linear interpolation	Max. 4	●
22		Circular interpolation	G02, G03	●
23		Inverse time feedrate	G93	●
24		Helical interpolation		●
25		Universal interpolator NURBS		●
26		Spline interpolation (A, B and C splines)		○
27		Dwell	G04	●
28		Separate path feed for corners and chamfers		●
29		Reposition		●
30		Acceleration with Jerklimitation		●
31		Positioning	G00	●
32		Cartesian point-to-point (PTP) travel		●
33		TRANSMIT/cylinder surface transformation	Not available for 2-axis type	●
34		Inclined axis	If machine attached inclind Y axis	●
35		Inclined axis TRAANG after TRANSMIT/TRACYL	If machine attached inclind Y axis	●
36		Couplings	CP-Basic(If machine attached milling spindle)	●
37			CP-Comfort	○
38	Spindle & M code function	Spindle speed, digital setpoint		●
39		Spindle speed, max. programmable value range	106 ... 0.0001 (display: ± 999999999.9999)	●
40		Spindle override	50 - 120 %	●
41		Automatic gear state selection		●
42		Oriented spindle stop		●
43		Spindle speed limitation min./max.		●
44		Constant cutting rate		●
45		Spindle control via PLC (Positioning, oscillation)		●
46		Changeover to axis mode		●
47		Tapping with compensating chuck/rigid tapping		●
48		Retraction for rigid tapping		●
49	Tool function	Tool radius compensations in plane		
50		• With approach and retract strategies		●
51		• With transition circle/ellipse on outer edges		●
52		Number of tools/cutting edges in tool list	PPU.4 for S828D SW261 (2 axis/M-type)	256/512
53			PPU.4 for S828D SW281 (S/MS/Y/SY-type)	768/1536
54		Tool length compensation		●
55		Operation with tool management		●
56		Tool list		●
57		Tool offset selection via T and D numbers		●
58		Replacement tools for tool management	Include tool load monitoring option	○
59		Monitoring of tool life and workpiece count		●
60		Manual measurement of tool offset		●
61		Magazine list		●
62		Loading and unloading of tools		●
63	Programming & Editing function	Number of subroutine passes <= 9999		●
64		Number of levels for skip blocks 1		●
65		Number of levels for skip blocks 8		○
66		Polar coordinates		●
67		1/2/3-point contours		●
68		Dimensions metric/inch, changeover manually or via program		●

CNC Specifications

● Standard ○ Optional X Not applicable

No.	ITEM		Spec.	S828D
69	Programming & Editing function	Program functions		
70		• Dynamic preprocessing memory FIFO		●
71		• Look ahead number of blocks	In 840D, If machine attached milling spindle	1
72		• Frame concept		●
73		• Inclined-surface machining with swivel cycle		●
74		• Axis/spindle replacement		●
75		• Geometry axes, switchable online in the CNC program		●
76		• Program preprocessing		●
77		Online ISO dialect interpreter		●
78		Program/workpiece management		
73		• Parts programs on NCU, max. number		750
74		• Workpieces on NCU, max. number		250
75		• On USB storage medium (e.g. disk drive, USB stick)		●
76		• On network drive		○
77		Settable offsets, max. number	G54, G55, G56 ...	100
78		Program editor		
79		• Programming support for cycles program(Program Guide)		●
80		• CNC editor with editing functions: Marking, copying, deleting		●
81		• Programming graphics/free contour input (contour calculator)		●
82		• Support for parameter input Animated Elements		●
83		• ShopTurn/ShopMill Machining step programming		●
84		Technology cycles for drilling/milling		●
85		Pocket milling free contour and islands stock removal cycle		●
86		Residual material detection		●
87		Access protection for cycles		●
88		Programming support can be extended,e.g. customer cycles		●
89		2D simulation		●
90		3D simulation, finished part		●
91		Simultaneous recording		●
92	Others functions (Operation, setting & Display, etc)	JOG		
93		• Handwheel selection		●
94		• Switchover: inch/metric		●
95		• Manual measurement of zero/work offset		●
96		• Manual measurement of tool offset		●
97		• Automatic tool/workpiece measurement		●
98		• Reference point approach, automatic/via CNC program		●
99		Automatic		
100		• Execution from USB or CF card interface on operator panel front		●
101		• Execution from HMI memory on NCU CF card	In 840D, If machine attached milling spindle	X
102		• Execution from network drive		○
103		Operating software languages		
104		• Ch_S,Ch_T, En, Fr, Gr, It, Kr, Pt, Sp		●
105		• Additional languages, use of language extensions		●
106		Working area limitation		●
107		Limit switch monitoring		●
108		Software and hardware limit switches		●
109		Position monitoring		●
110		Standstill (zero-speed) monitoring		●
111		Clamping monitoring		●
112		2D/3D protection zones		●
113		Contour monitoring		●
114		Axis limitation from the PLC		●
115		Alarms and messages		●
116		Action log can be activated for diagnostic purposes		●
117		PLC status		●
118		Remote Control System (RCS) remote diagnostics		
119		• RCS Host remote diagnostics function		○
120		• RCS Commander (viewer function)	RCS Commander for PC/PG on CD-ROM	●
121		Integrated service planner for the monitoring of service intervals		●
122		Measuring, Measuring stage 1 Two probes (switching) with/ without deletion of distance-to-go	Measurement prove & receiver is needed	●
123		Measuring cycles for drilling/milling and turning • Calibrating workpiece probes • Workpiece measurement • Tool measuring	Measurement prove & receiver is needed (included in MDynamics 3-axis & 5-axis) In 840D, If machine attached milling spindle	○
124		Easy Extend		●
125		Contour handwheel		●
126		Integrate screens in SINUMERIK Operate with SINUMERIK Integrate Run MyScreens		●
127		Cross-mode actions (ASUPs and synchronized actions in all operating modes)		○

Responding to Customers
Anytime, Anywhere

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

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

Customer Support Service

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

Supplying Parts

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

Field Services

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

Technical Support

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

Training

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

Major Specifications

PUMA 600/700/800Ⅱ series

Description	Unit	PUMA 600Ⅱseries [LY/LXY]	PUMA 700Ⅱ series [LY/LXY]	PUMA 800Ⅱ series [LY/LXY]	PUMA 800BⅡ [LB]
Max. turning diameter	mm (inch)	900 (35.4) [750 (29.5)]			900 (35.4)
Max. turning legnth (Std. / L / XL)	mm (inch)	1600 / 3200 / 5050 (63 / 126 / 199) [3250 / 5050 (128 / 199)]			1600 (63) [3200 (126)]
Chuck size	inch	18	24	32	Order made
Spindle through hole diameter	mm (inch)	152 (6.0)	181 (7.1)	320 (12.6)	375 (14.8)
Max. spindle speed	r/min	1800	1500	750	500
Max. spindle power (S6 25%/ S6 60% / S1 Cont.)	kW (Hp)	55/45/37(73.8/60.3/49.6) {75/60(100.1/80.5) (S3 60% / S1 Cont.)}*			

*{} : Option

Doosan Machine Tools

www.doosanmachinetools.com

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.

ver. EN 200820 SU