

DOOSAN



PUMA 4100/5100 series

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

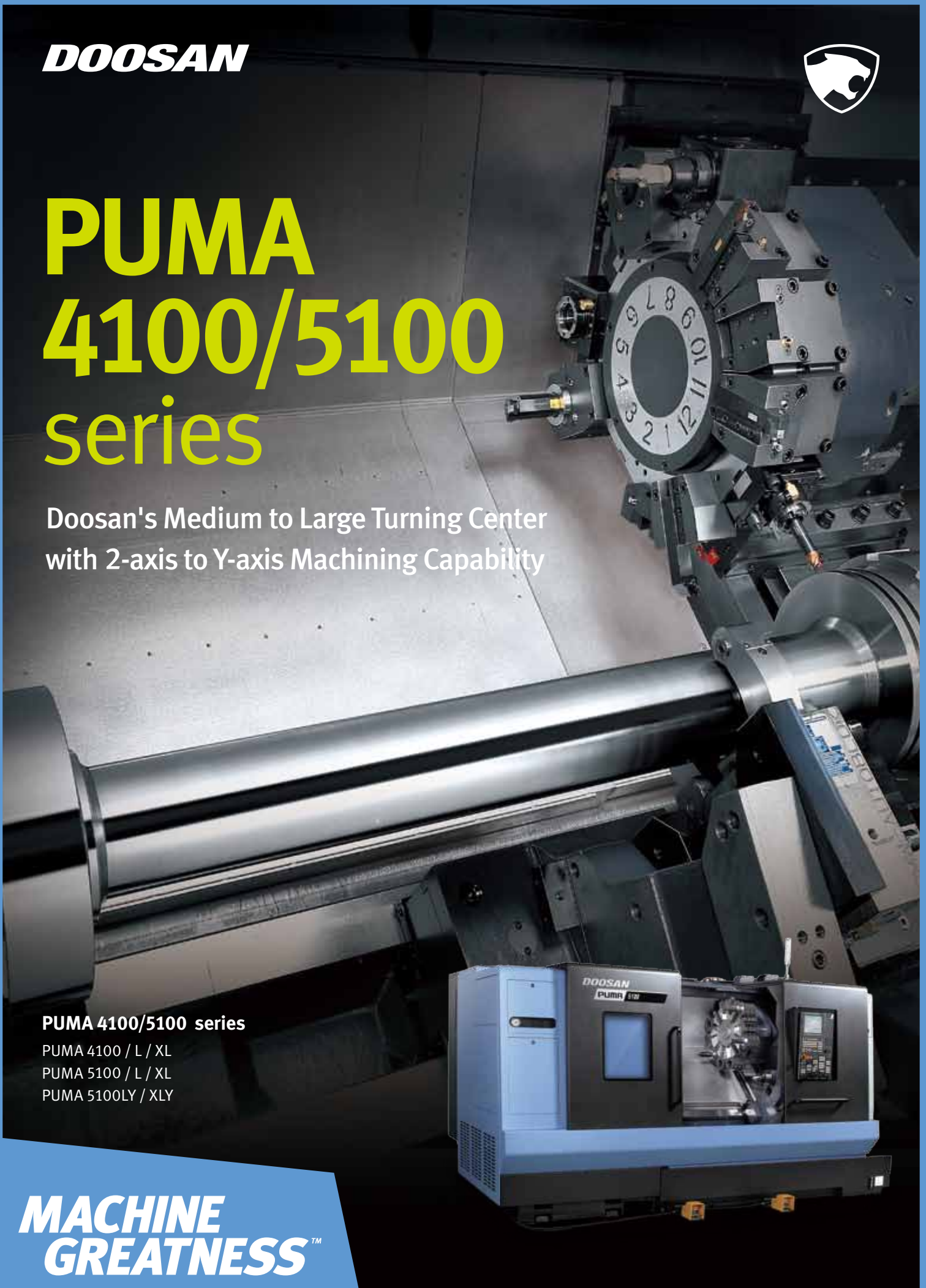
PUMA 4100/5100 series

PUMA 4100 / L / XL

PUMA 5100 / L / XL

PUMA 5100LY / XLY

**MACHINE
GREATNESS™**



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PUMA 4100/5100 series

PUMA 4100/5100 series are horizontal turning centers designed for machining medium to large size workpieces. It ensures powerful machining capability by using a 2 step gearbox and high torque motors together with a rigid box guideway structure. Also, it can process complex workpieces by using the optional Y axis function. In addition, the optional Doosan threading functions, especially for Oil/Gas industry parts, makes it the solution for a wide variety of applications.

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Various Line-up

- For machining various medium to large size workpieces, the PUMA 4100/5100 series offers 38 models in the line-up. This consists of chuck sizes from 12" to 21" diameter with optional big bore spindle, 1m/2m/3m turning length and 2 axis to Y axis configurations.

Powerful machining capability

- PUMA 4100/5100 series have powerful machining capability with optimized cutting performance due to the 2 speed gearbox and high torque spindle motors, and stable box guideway structure.

Improve convenience

- PUMA 4100/5100 series can process complex parts in just one setup by applying the optional Y axis function. In addition, the newly designed operation panel and optional threading functions optimize the operators convenience.

Basic Structure

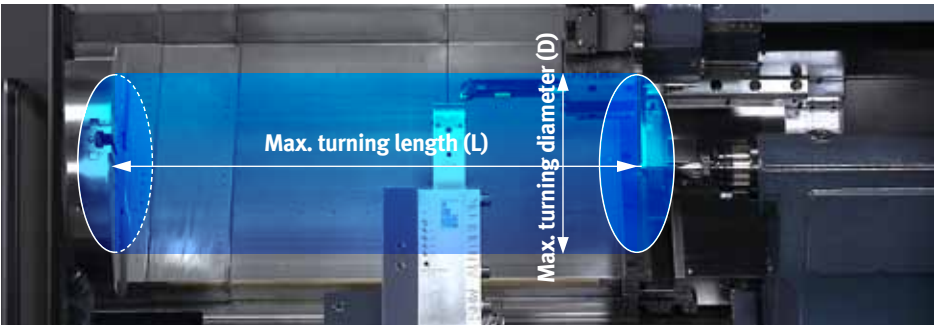
Machine capability ranges from 2 axis to Y axis, which allows large, complex parts to be completed in a single setup.



Model		Chuck size (inch)	Standard model (Max. turning length 1m)			L(Long)-model (Max. turning length 2m)			XL(Extra long)-model (Max. turning length 3m)		
			2-axis	M	Y	2-axis	M	Y	2-axis	M	Y
PUMA 4100 series	A	12	○	○	-	○	○	-	○	○	-
	B	15	○	○	-	○	○	-	○	○	-
	C	21	○	○	-	○	○	-	○	○	-
PUMA 5100 series	A	15	○	○	-	○	○	○	○	○	○
	B	21	○	○	-	○	○	○	○	○	○
	C	Big bore	○	-	-	○	-	○	○	-	-

Machining area

The largest work envelop in its class with maximum turning diameter of Ø650 mm and maximum turning length of 3m.



Max. turning diameter

Ø650 mm
(Ø25.6 inch)

Max. turning length

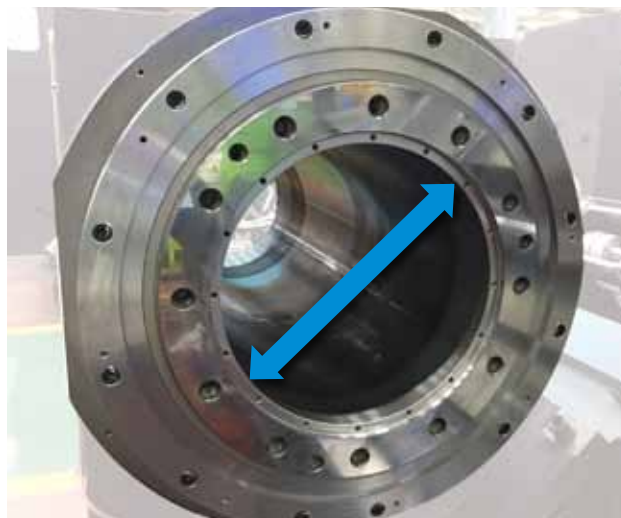
3152 mm
(Ø124.1 inch)

Unit : mm (inch)

Function	Model	Max. "D"	Max. "L"
2-axis (for Turning)	PUMA 4100A / LA / XLA	550 (21.7)	1074 / 2124 / 3152 (42.3 / 83.6 / 124.1)
	PUMA 4100B / LB / XLB	550 (21.7)	1042 / 2092 / 3120 (41.0 / 82.4 / 122.8)
	PUMA 4100C / LC / XLC	550 (21.7)	1002 / 2052 / 3080 (39.4 / 80.8 / 121.3)
	PUMA 5100A / LA / XLA	650 (25.6)	1032 / 2082 / 3082 (40.6 / 82.0 / 121.3)
	PUMA 5100B / LB / XLB	650 (25.6)	992 / 2042 / 3042 (39.1 / 80.4 / 119.8)
	PUMA 5100C / LC / XLC	650 (25.6)	992 / 2042 / 3042 (39.1 / 80.4 / 119.8)
M-model (for Turn-Milling)	PUMA 4100MA / LMA / XLMA	560 (22.0)	1010 / 2060 / 3100 (39.8 / 81.1 / 122.0)
	PUMA 4100MB / LMB / XLMB	560 (22.0)	978 / 2028 / 3068 (38.5 / 79.8 / 120.8)
	PUMA 4100MC / LMC / XLMC	560 (22.0)	938 / 1988 / 3028 (36.9 / 78.3 / 119.2)
	PUMA 5100MA / LMA / XLMA	650 (25.6)	992 / 2042 / 3068 (39.1 / 80.4 / 120.8)
	PUMA 5100MB / LMB / XLMB	650 (25.6)	952 / 2002 / 3028 (37.5 / 78.8 / 119.2)
Y-axis model (for Turn-Milling)	PUMA 5100LYA / LYB / LYC	550 (21.7)	2050 / 2020 / 2020 (80.7 / 79.5 / 79.5)
	PUMA 5100XLYA / XLYB	550 (21.7)	3070 / 3040 (120.9 / 119.7)

Machining area

The machines are available with a variety of spindle through bore sizes to provide the ideal solution for customers pipe diameters.



Max. spindle through hole diameter

Ø275 mm
(Ø10.8 inch)

Unit : mm (inch)

Model		Max. spindle through hole diameter
PUMA 4100	A	115 (4.5)
	B	132 (5.2)
	C	181 (7.1)
PUMA 5100	A	132 (5.2)
	B	181 (7.1)
	C	275 (10.8)

Spindle

The gearbox design allows PUMA 4100/5100 spindle to have unparalleled power and torque, which boosts productivity with extreme heavy-duty cutting capability.



Max. spindle speed

1500 r/min

Max. spindle power (30min/Cont.)

45/37 kW
(60.3/49.6 Hp)

Max. spindle torque

4038 N·m
(2980.0 ft-lb)

PUMA 5100B

Model	Max. spindle speed r/min	Max. spindle power (30min/Cont.) kW (Hp)	Max. spindle torque N·m (ft-lb)
PUMA 4100A / LA / XLA	3000	35 (S3 25%)/26/22 (46.9 (S3 25%)/34.9/29.5)	1584 (1169.0)
PUMA 4100B / LB / XLB	2000	35 (S3 25%)/26/22 (46.9 (S3 25%)/34.9/29.5)	2379 (1755.7)
PUMA 4100C / LC / XLC	1500	37/30 (49.6/40.2)	3280 (2420.6)
PUMA 4100MA/LMA / XLMA	3000	30/22 (40.2/29.5)	832 (614.0)
PUMA 4100MB / LMB / XLMB	2000	30/22 (40.2/29.5)	1611 (1188.9)
PUMA 4100MC / LMC / XLMC	1500	37/30 (49.6/40.2)	2432 (1794.8)
PUMA 5100A / LA / XLA	2000	37/30 (49.6/40.2)	3280 (2420.6)
PUMA 5100B / LB / XLB	1500	45/37 (60.3/49.6)	4038 (2980.0)
PUMA 5100C / LC / XLC	1000	45/37 (60.3/49.6)	4463 (3293.7)
PUMA 5100MA / LMA / XLMA	2000	37/30 (49.6/40.2)	2432 (1794.8)
PUMA 5100MB / LMB / XLMB	1500	45/37 (60.3/49.6)	2957 (2182.3)
PUMA 5100LYA / XLYA	2000	37/30 (49.6/40.2)	2431 (1794.1)
PUMA 5100LYB / XLYB	1500	45/37 (60.3/49.6)	2957 (2182.3)
PUMA 5100LYC	1000	45/37 (60.3/49.6)	3268 (2411.8)

Tailstock

High rigidity hydraulic tailstock is rigidly clamped to the bed slide way to provide stable support for long workpieces.



Tailstock travel

1000 / 2050 / 3070 mm

(39.4 / 80.7 / 120.9 inch)

Unit : mm (inch)

Model	Tailstock travel	Quill diameter	Quill travel	Std.	Opt.
PUMA4100 / M, PUMA 5100 / M	1000 (39.4)	120 (4.7)	120 (4.7)	Manual	Programmable
PUMA4100L / LM, PUMA 5100L / LM	2050 (80.7)	120 (4.7)	120 (4.7)		
PUMA4100XL / XLM, PUMA 5100XL / XLM	3070 (120.9)	120 (4.7)	120 (4.7)		
PUMA 5100LY	2050 (80.7)	120 (4.7)	120 (4.7)	Programmable	-
PUMA 5100XLY	3050 (119.7)	120 (4.7)	120 (4.7)		

Turret

Turret rotation is controlled by servo motor for fast and reliable tool selection. Doosan's unique BMT85P turret design is used on M and Y specification models to boost heavy duty milling performance.



2-axis model

No. of tool stations

PUMA 4100A / LA / XLA

12^{ea} (std.) / **10^{ea}** option

PUMA 4100B / LB / XLB / C / LC / XLC
PUMA 5100 series

10^{ea} (std.) / **12^{ea}** option



M,Y Model

BMT75P

No. of tool stations

12^{ea}

Cutting performance

Multi-functionality including end milling, face milling, drilling, tapping, etc. offers better machining performance while minimizing work setting.



O.D turning

Cutting speed	210 m/min (8267.7 ipm)
Feedrate	0.55 mm/rev
Cutting depth	11.9 mm (0.5 inch)



ID turning (Rough cutting)

Cutting speed	280 m/min (11023.6 ipm)
Feedrate	0.1 mm/rev
Cutting depth	3 mm (0.1 inch)
Tool length	4.0D



U-Drill (2-axis)

Cutting Tool	80 mm (3.1 inch)
Spindle speed	750 r/min
Feedrate	0.2 mm/rev



Face milling

Face mill dia.	63 mm (2.5 inch)
Cutting speed	176 m/min (6.9 ipm)
Feedrate	900 mm/min (35.4 ipm)
Cutting depth	6 mm (0.2 inch)



U-Drill (3-axis)

Cutting Tool	25 mm (1.0 inch)
Spindle speed	2500 r/min
Feedrate	0.3 mm/rev

* This test result come from under condition

1) Material : Steel (SM45C)

2) Test Machine :PUMA 5100LMA

- Main spindle motor : 37 / 30 kW (49.6 / 40.2 Hp)

- Rotary tool motor : 11 / 5.5 kW (14.8 / 7.4 Hp)

* 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 Specifications

● Standard ○ Optional △ Contact DOOSAN X N/A

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No.	Description	Features			PUMA 4100 series						PUMA 5100 series							
					A	B	C	MA	MB	MC	A	B	C	MA	MB	LYA/ XLYA	LYB/ XLYB	LYC
1	CHUCK	None			○	○	○	○	○	○	○	●	○	○	○	○	●	
2		12 Inch			●	X	X	●	X	X	X	X	X	X	X	X	X	
3		15 Inch			X	●	X	X	●	X	●	X	X	●	X	●	X	
4		18 Inch			X	○	X	X	○	X	○	X	X	○	X	X	X	
5		21 Inch			X	X	●	X	X	●	X	●	X	X	●	X	●	
6		24 Inch			X	X	X	X	X	X	X	○	X	X	○	X	○	
7		Special Chuck			△	△	△	△	△	△	△	△	△	△	△	△	△	
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*	Specifi- cation	Manual	Ø25 ~ Ø200	○	○	○	○	○	○	X	X	X	X	X	X	X	
14				Ø35 ~ Ø330	X	X	X	X	X	X	○	○	○	○	○	○	○	
15				Ø50 ~ Ø260	○	○	○	○	○	○	○	○	○	○	○	X	X	X
16			Hydraulic or Pramm- able	Ø16 ~ Ø152 (SLU-3Z)	○	○	○	○	○	○	X	X	X	X	X	X	X	X
17				Ø20 ~ Ø165 (SLU-3.1Z)	○	○	○	○	○	○	X	X	X	X	X	X	X	X
18				Ø30 ~ Ø245 (SLU-4Z)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
19				Ø45 ~ Ø310 (SLU-5Z)	X	X	X	X	X	X	○	○	○	○	○	○	○	○
20	TAILSTOCK	Manual type			●	●	●	●	●	●	●	●	●	●	X	X	X	
21		Programmable type			○	○	○	○	○	○	○	○	○	○	○	●	●	●
22		Live center			●	●	●	●	●	●	●	●	●	●	●	●	●	
23		Built-in dead center			○	○	○	○	○	○	○	○	○	○	○	○	○	
24	COOLANT PUMP	1.5 BAR			●	●	●	●	●	●	●	●	●	●	X	X	X	
25		4.5 BAR			○	○	○	○	○	○	○	○	○	○	○	●	●	●
26		7/10/14.5/20/70 BAR			○	○	○	○	○	○	○	○	○	○	○	○	○	
27	COOLANT OPTIONS	Oil skimmer			○	○	○	○	○	○	○	○	○	○	○	○	○	
28		Coolant chiller			○	○	○	○	○	○	○	○	○	○	○	○	○	
29		Coolant pressure switch			○	○	○	○	○	○	○	○	○	○	○	○	○	
30		Coolant level switch			○	○	○	○	○	○	○	○	○	○	○	○	○	
31		Coolant gun			○	○	○	○	○	○	○	○	○	○	○	○	○	
32	CHIP DISPOSAL	Chip conveyor (Right side)			○	○	○	○	○	○	○	○	○	○	○	○	○	
33		Chip bucket			○	○	○	○	○	○	○	○	○	○	○	○	○	
34		Air blower for chuck			○	○	○	○	○	○	○	○	○	○	○	○	○	
35		Mist collector interface (Duct only)			○	○	○	○	○	○	○	○	○	○	○	○	○	
36		Integrated mist collector			○	○	○	○	○	○	○	○	○	○	○	○	○	
37	MEASURE- MENT & AUTOMA-TION	Tool setter	Manual	○	○	X	○	○	X	○	X	○	○	X	X	X	X	
38			Automatic	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
39		Auto door			○	○	○	○	○	○	○	○	○	○	○	○	○	

* Please contact DOOSAN to select detailed steady rest specifications

Peripheral equipments

Long boring bar option



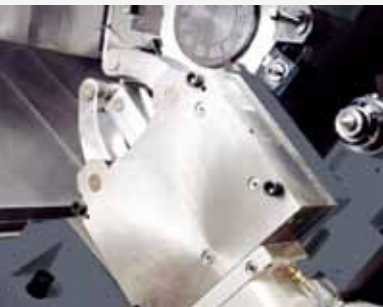
The long boring bar option allows you to easily machine deep holes to minimize cycle time. Please consult with Doosan specialist for details.

Twin chucking option

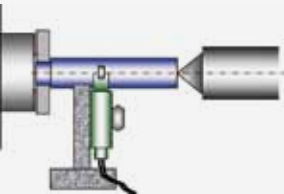


For more stable pipe threading process, twin chucking option(manual or pneumatic) is available. Please consult with Doosan specialist for details.

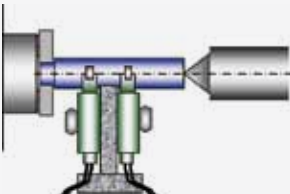
Steady rest option



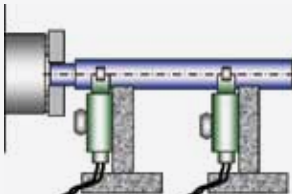
SINGLE



DOUBLE



TWIN



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

Coolant tank



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.

Chip conveyor (Right side) option



Long

Short

Needle

Sludge

Material		Carbon steel			Cast iron		Aluminium		
		Long	Short	Needle	Short	Sludge	Long	Short	Needle
Chip conveyor type									
Hinged belt type		○	△	X	△	X	○	△	X
Scraper type	Normal	X	○	△	○	△	X	△	X
	Magnetic	X	○	○	○	○	—	—	—

○ : Suitable, △ : Possible, X : Not suitable

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FANUC

Fanuc CNC is tuned ideally to PUMA 4100 / 5100 series, in order to maximize productivity.

User-friendly operation panel

The newly designed operation panel groups all of the common buttons together to enhance operator's convenience. Also, 'QWERTY' keypad is applied as standard to improve convenience of users who are accustomed to PC keyboards.



10.4" Display

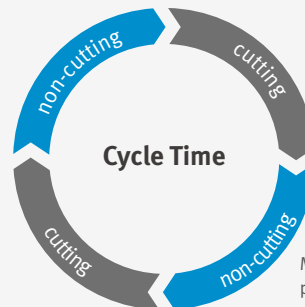
- SB & PCMCIA card (Std.)
- Qwerty type keyboard
- Easy to put button switch for attached option
- Ergonomic new design

Easy Operation Package

Increased Productivity

Reduced non-cutting time

by **10%**



Minimizes non-cutting time to further improve productivity.

Tool load monitoring



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

Operation rate



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

Stable threading performance

All PUMA 4100 / 5100 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.

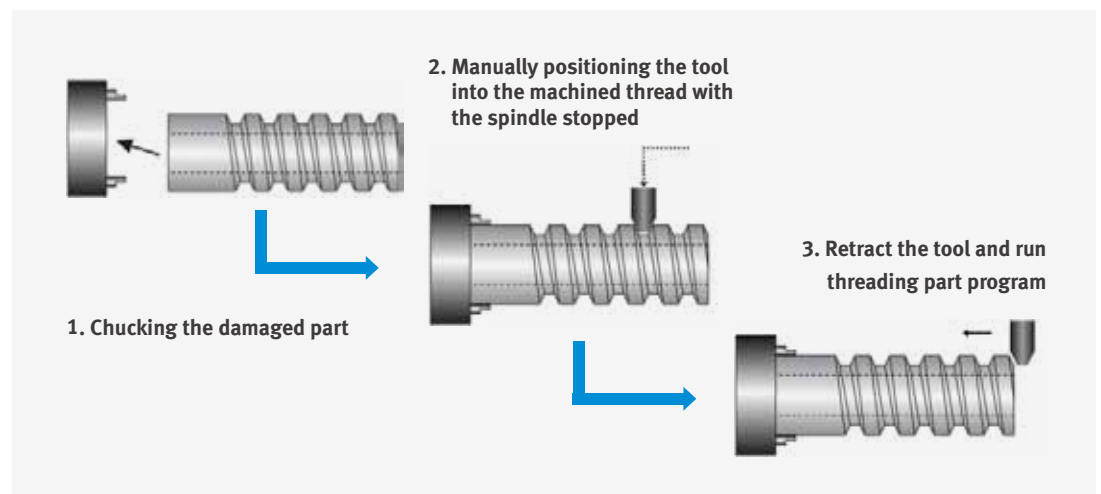
Threading repair function

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



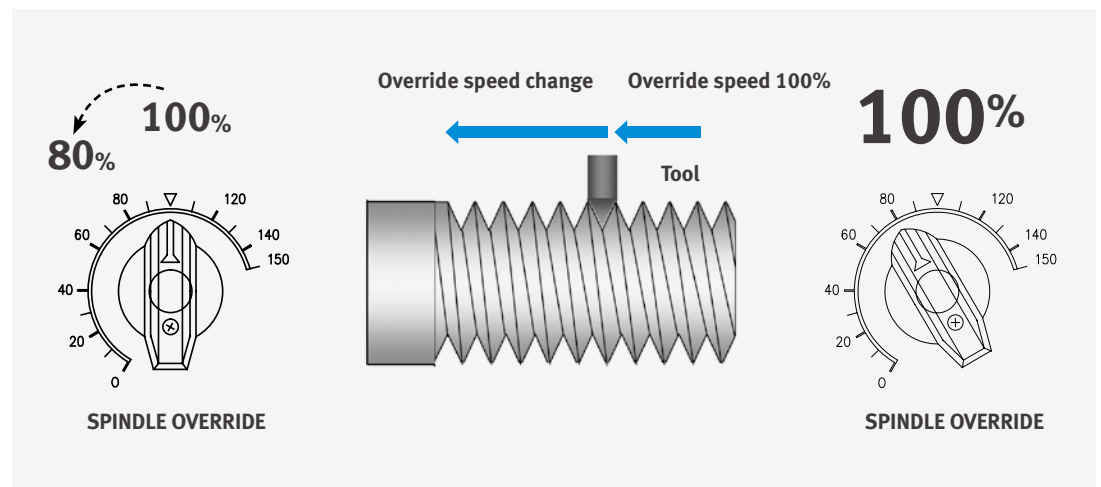
Re-machining function option

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



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.



Power-Torque Diagram

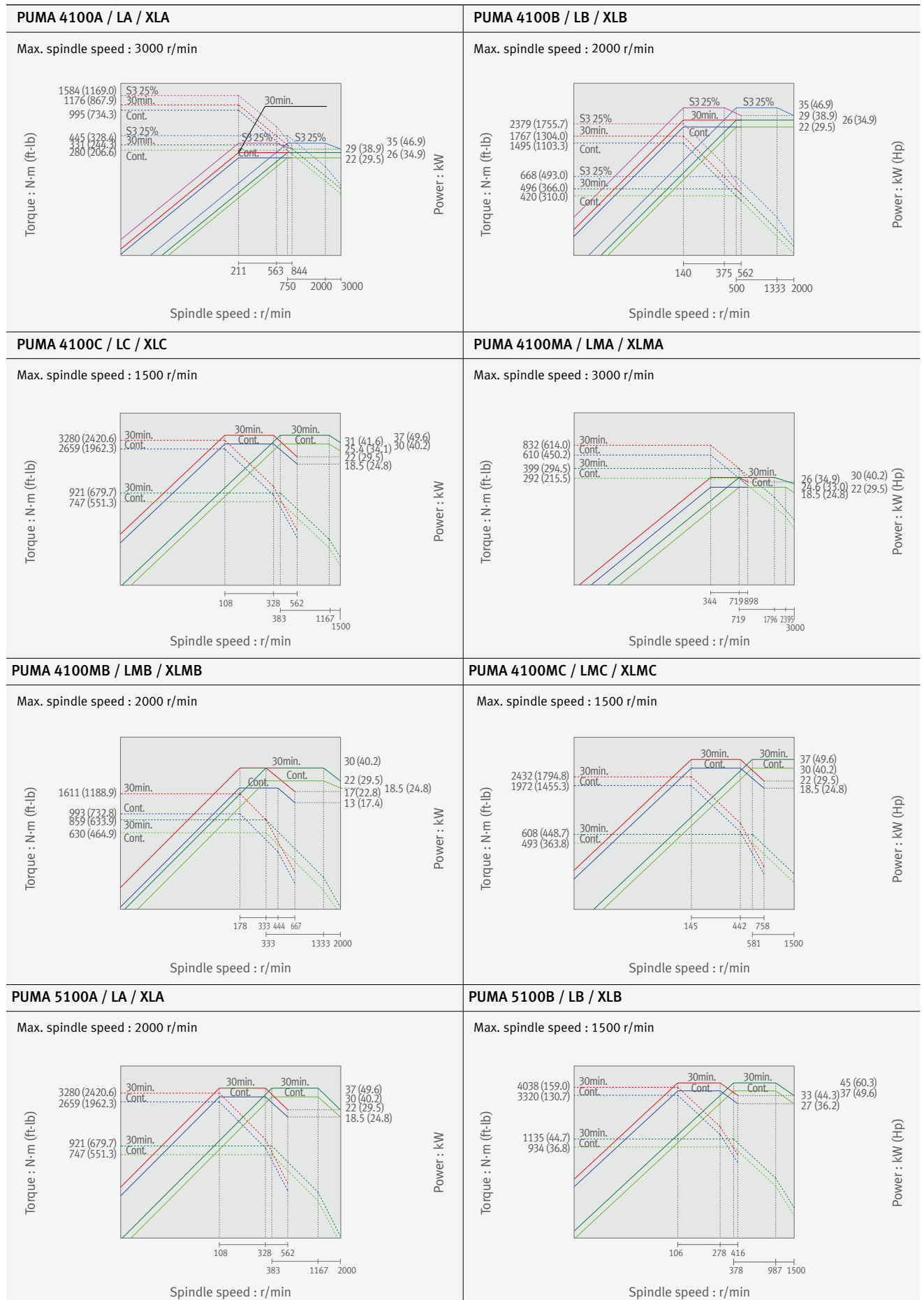
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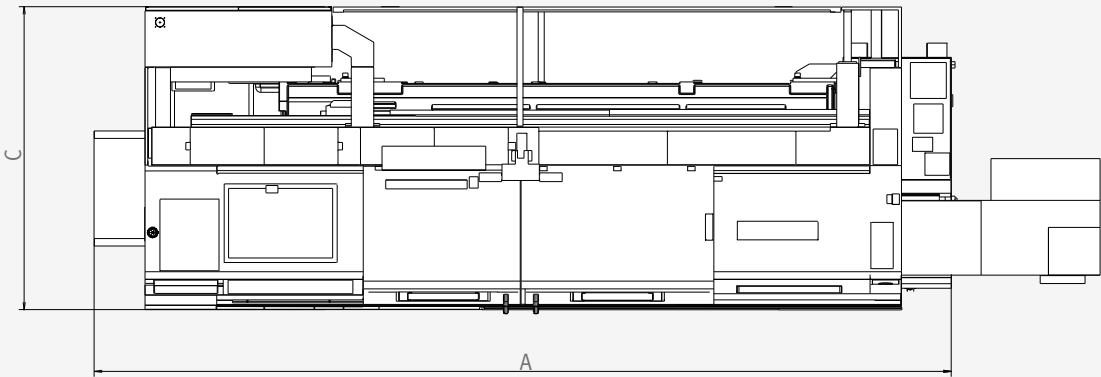
PUMA 5100C / LC / XLC Max. spindle speed : 1000 r/min Torque : N·m (ft·lb) Power : kW (Hp) Spindle speed : r/min	PUMA 5100MA / LMA / XLMA Max. spindle speed : 2000 r/min Torque : N·m (ft·lb) Power : kW (Hp) Spindle speed : r/min
PUMA 5100MB / LMB / XLMB Max. spindle speed : 1500 r/min Torque : N·m (ft·lb) Power : kW (Hp) Spindle speed : r/min	PUMA 5100LYA / XLYA Max. spindle speed : 2000 r/min Torque : N·m (ft·lb) Power : kW (Hp) Spindle speed : r/min
PUMA 5100LYB / XLYB Max. spindle speed : 1500 r/min Torque : N·m (ft·lb) Power : kW (Hp) Spindle speed : r/min	PUMA 5100LYC Max. spindle speed : 1000 r/min Torque : N·m (ft·lb) Power : kW (Hp) Spindle speed : r/min
Rotary tool Max. spindle speed : 4000 r/min Torque : N·m (ft·lb) Power : kW (Hp) Spindle speed : r/min	

External Dimensions

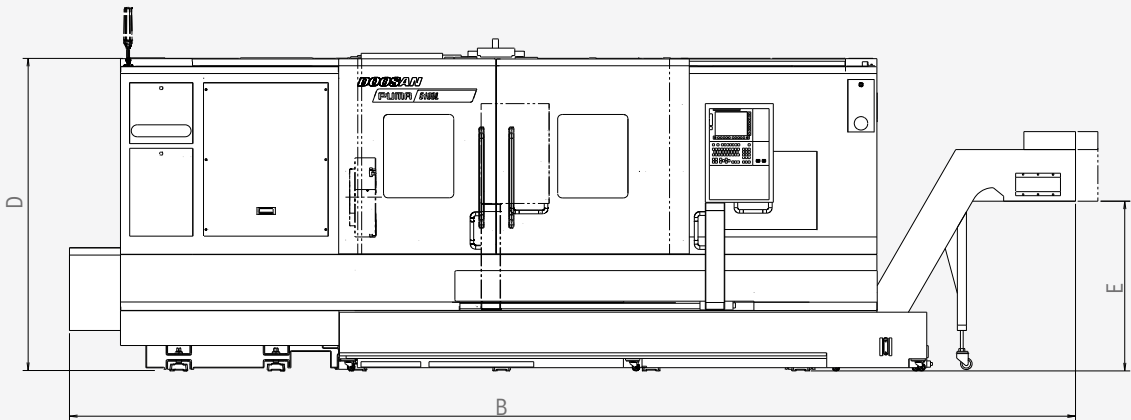
PUMA 4100 / 5100 series

Unit : mm (inch)

Top view



Front view

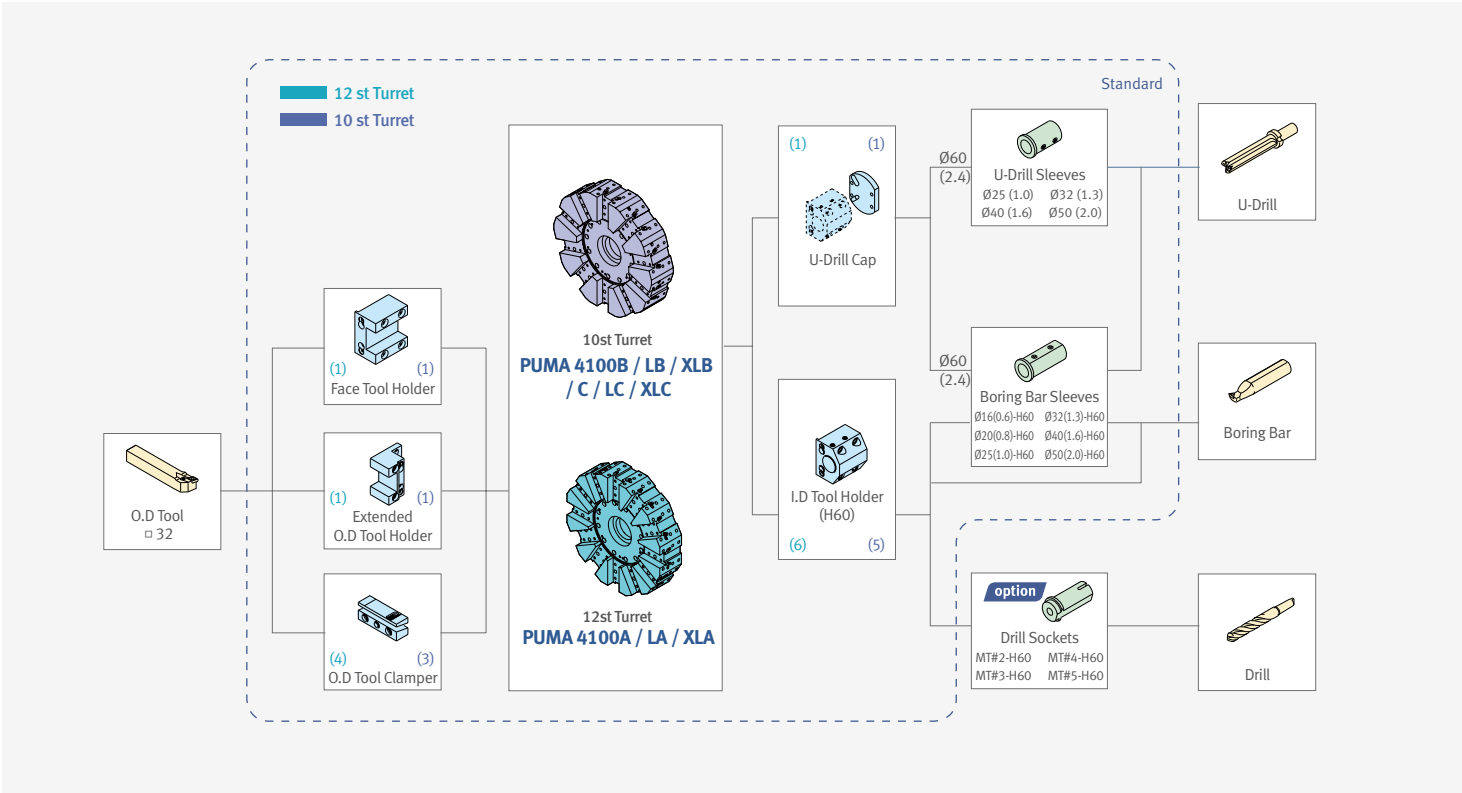


Model	A (Length)	B (Length with chip conveyor)	C (Width)	D (Height)	E (Height of ground to chip outlet)
PUMA 4100 / 5100	4654 / 4759 (183.2 / 187.4)	5549 (218.5)	2056 (80.9)	2194 (86.4)	1053 (41.5)
PUMA 4100L / 5100L	5774 / 5879 (227.3 / 231.5)	6669 (262.6)	2275 (89.6)	2272 (89.4)	1053 (41.5)
PUMA 4100XL / 5100XL	7024 / 7059 (276.5 / 277.9)	7958 / 7993 (313.3 / 314.7)	2276 (89.6)	2335 (91.9)	1021 (40.2)
PUMA 4100M / 5100M	4654 / 4759 (183.2 / 187.4)	5580 (219.7)	2056 (80.9)	2194 (86.4)	1053 (41.5)
PUMA 4100LM / 5100LM	5774 / 5879 (227.3 / 231.5)	6669 (262.6)	2275 (89.6)	2272 (89.4)	1053 (41.5)
PUMA 4100XLM / 5100XLM	7024 / 7059 (276.5 / 277.9)	7958 / 7993 (313.3 / 314.7)	2276 (89.6)	2335 (91.9)	1021 (40.2)
PUMA 5100LY	5980 (235.4)	6890 (271.3)	2522 (99.3)	2885 (113.6)	1050 (41.3)
PUMA 5100XLY	7302 (287.5)	8175 (321.9)	2632 (103.6)	2937 (115.6)	1050 (41.3)

* Some peripheral equipment can be placed in other places ★ 500 mm of a space is required to the right of the machine in order to install and remove chip conveyor.

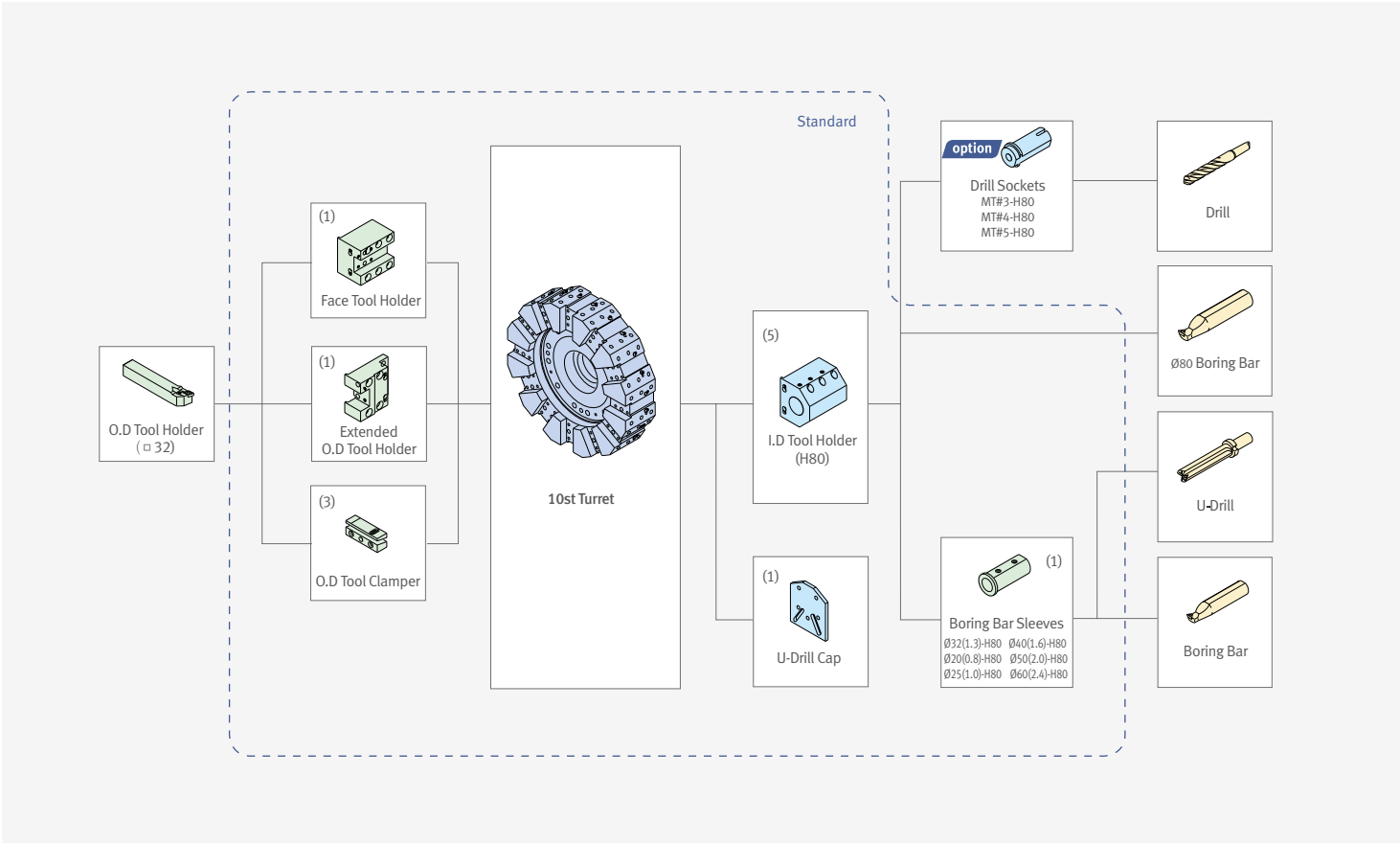
PUMA 4100

Unit : mm (inch)



PUMA 5100

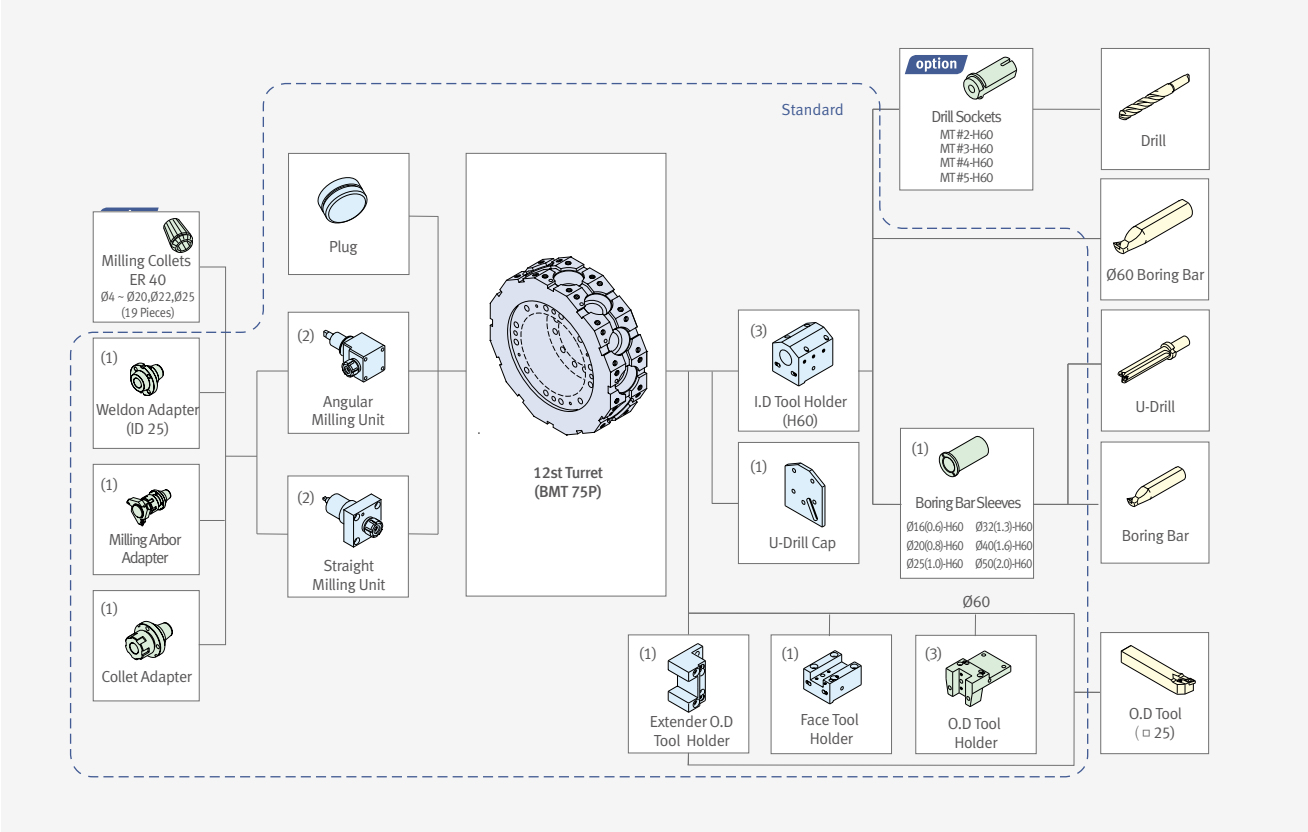
Unit : mm (inch)



Tooling System

PUMA 4100M / LM / XLM, PUMA 5100M / LM / XLM / LY

Unit : mm (inch)

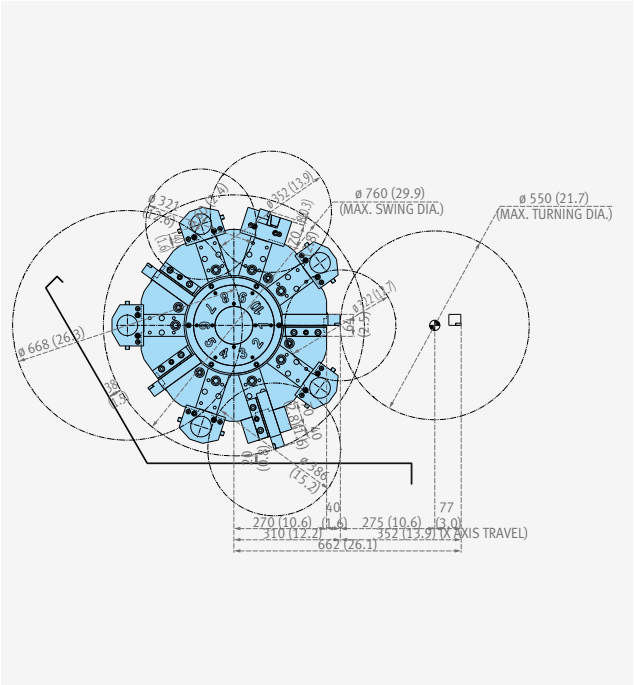


Tool Interference Diagram

PUMA 4100 (10 station)

PUMA 4100 (12 station)

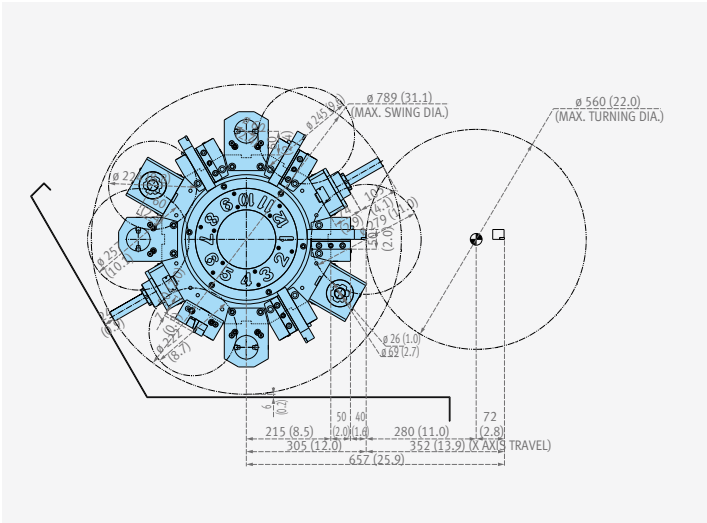
Unit : mm (inch)



Tool Interference Diagram

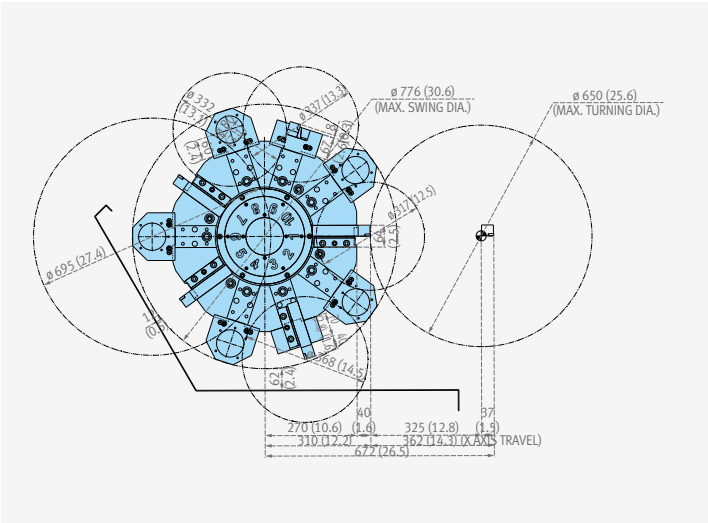
PUMA 4100M (12 station)

Unit : mm (inch)



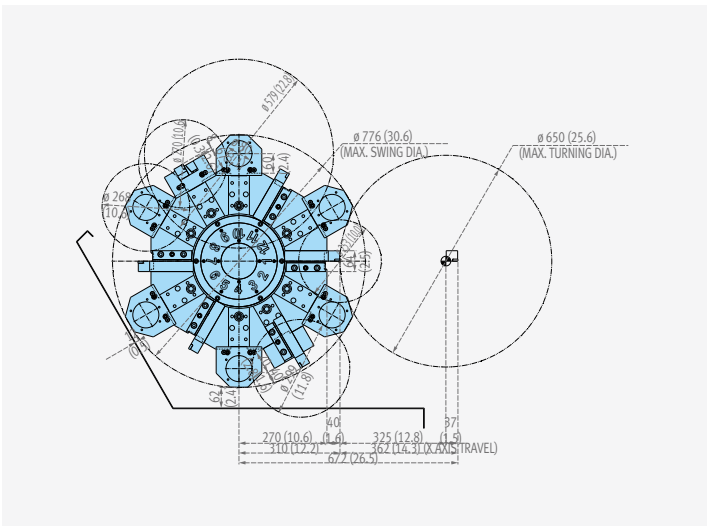
PUMA 5100 (10 station)

Unit : mm (inch)



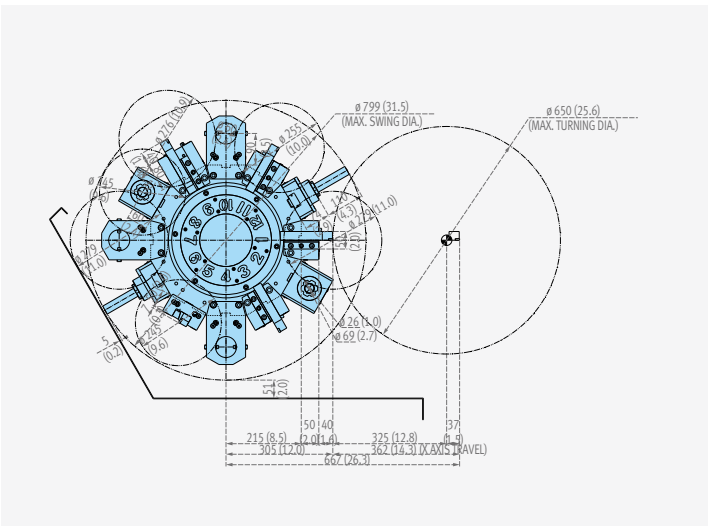
PUMA 5100 (12station)

Unit : mm (inch)



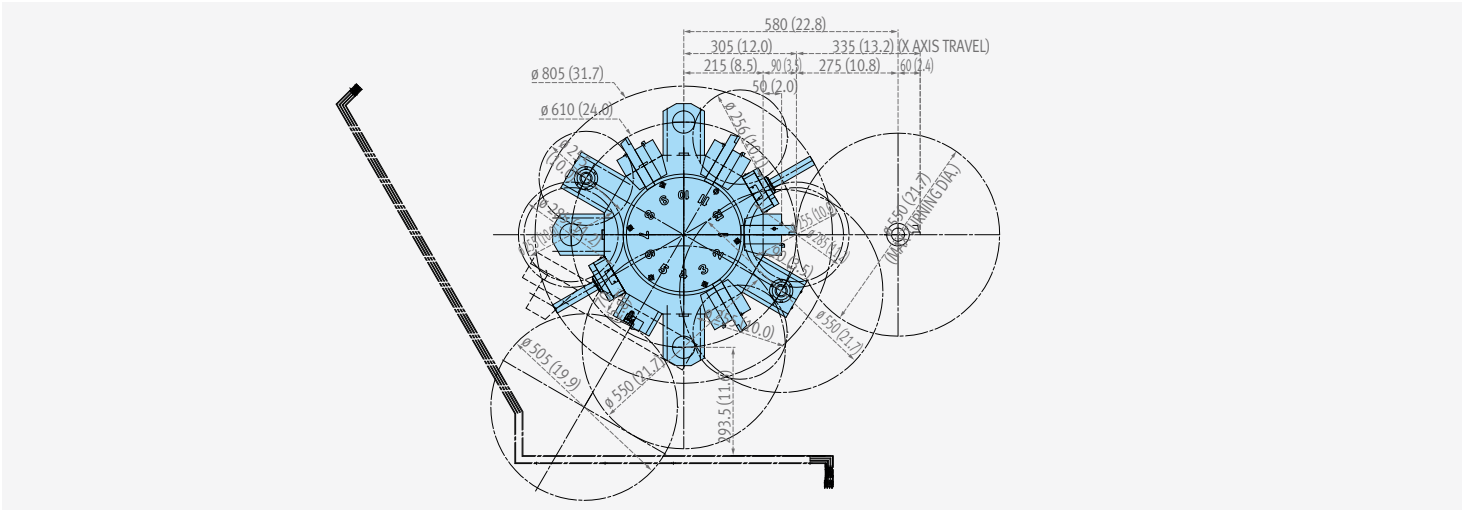
PUMA 5100M (12 station)

Unit : mm (inch)



PUMA 5100LY / XLY (12 station)

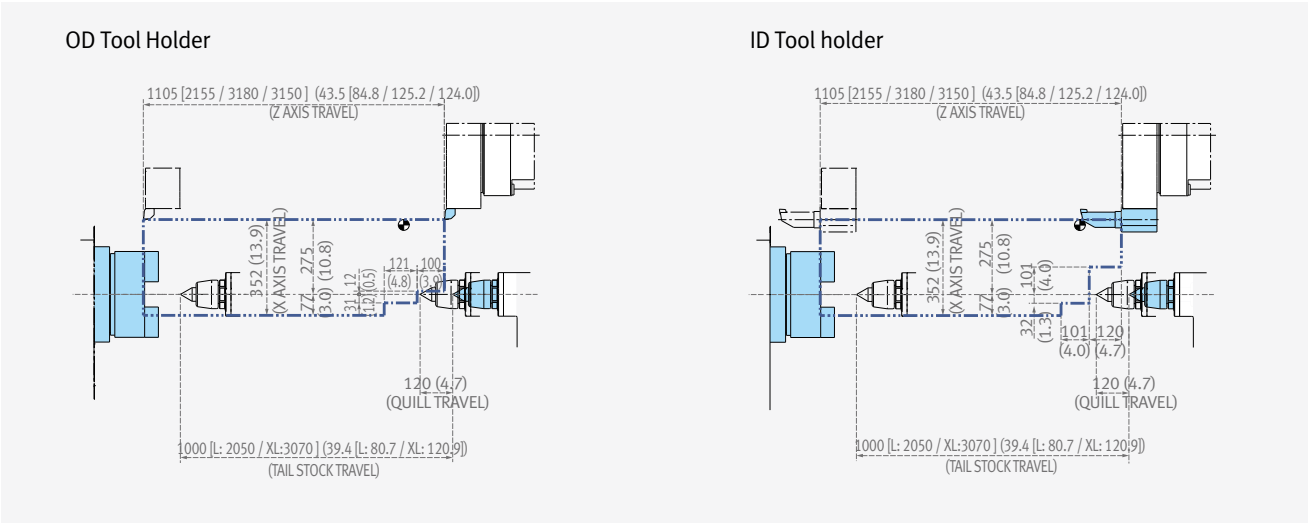
Unit : mm (inch)



Working Range Diagram

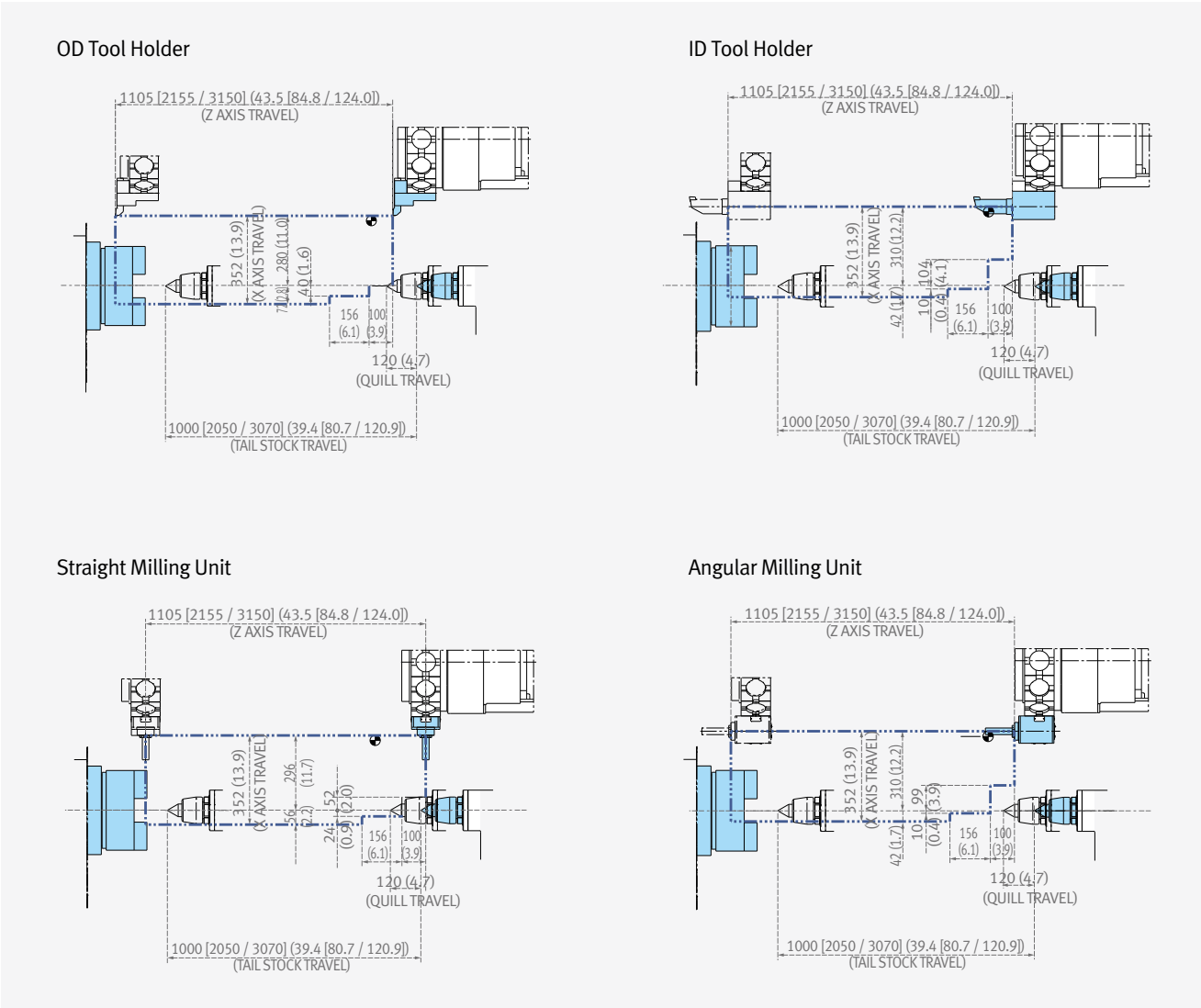
PUMA 4100 [L / XLA & XLB / XLC]

Unit : mm (inch)



PUMA 4100M [LM / XLM]

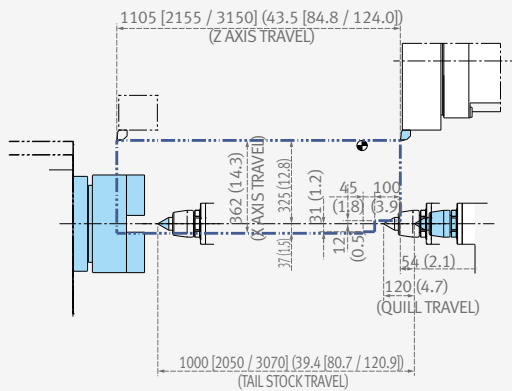
Unit : mm (inch)



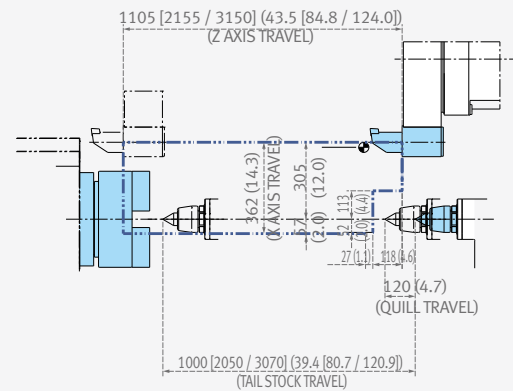
PUMA 5100 [L / XL]

Unit : mm (inch)

OD Tool Holder



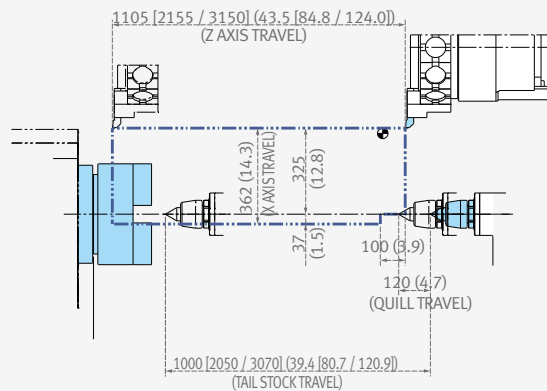
ID Tool holder



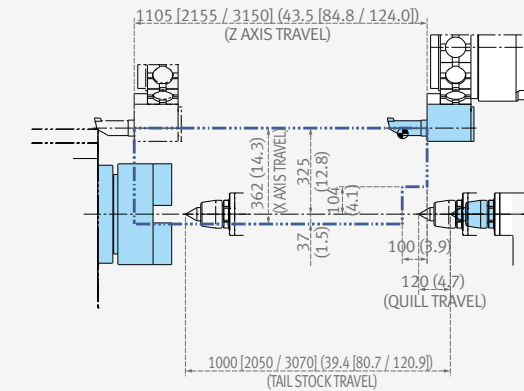
PUMA 5100M [LM / XLM]

Unit : mm (inch)

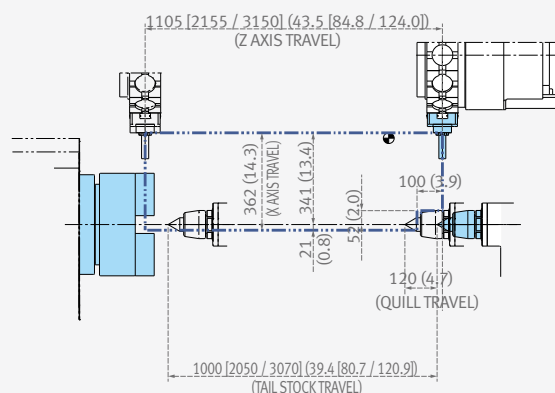
OD Tool Holder



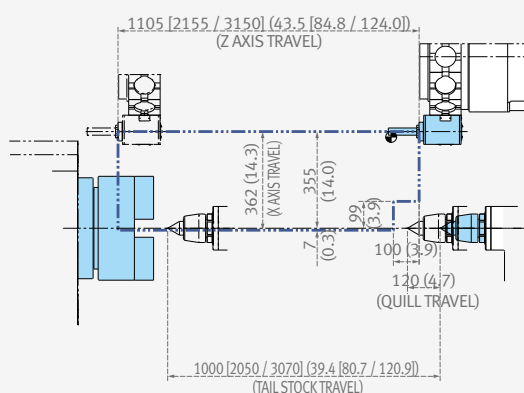
ID Tool Holder



Straight Milling Unit



Angular Milling Unit

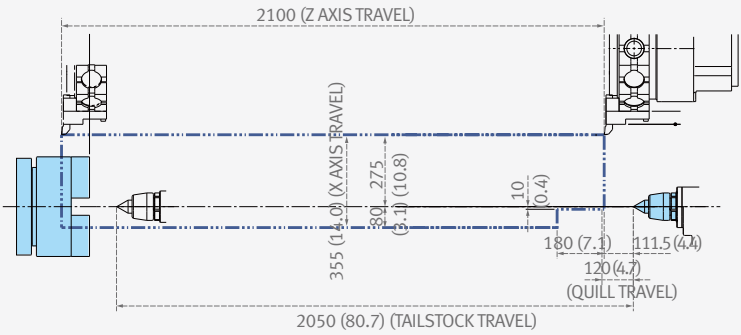


Working Range Diagram

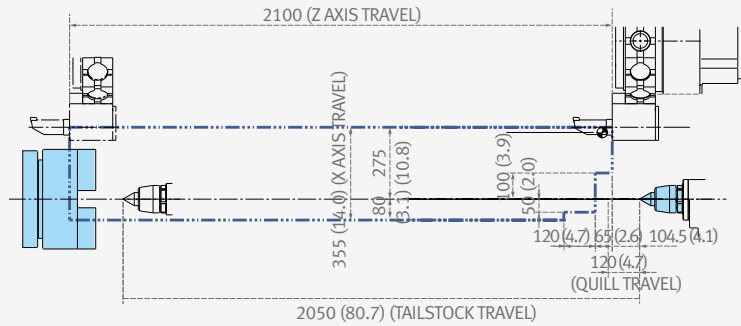
PUMA 5100LY

Unit : mm (inch)

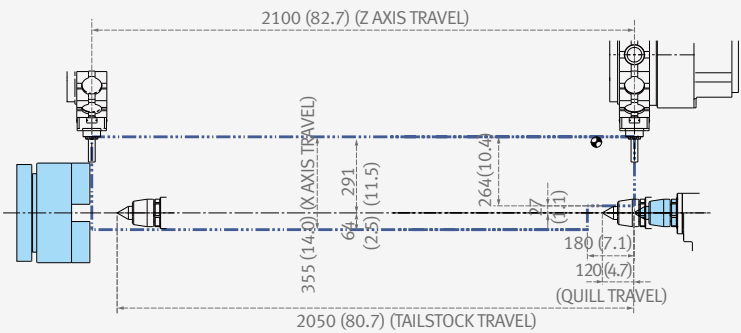
OD Tool Holder



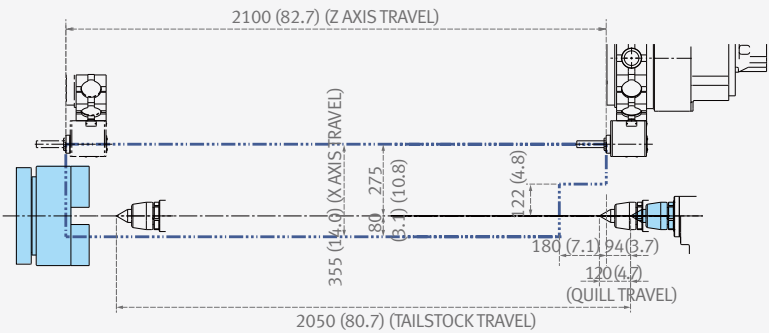
ID Tool Holder



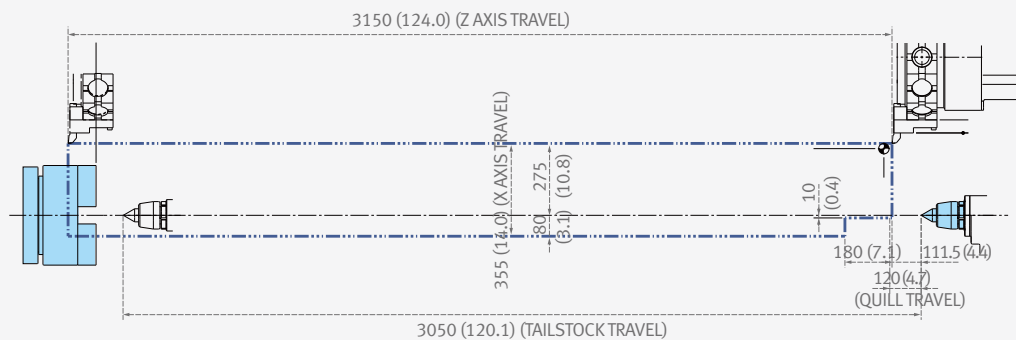
Straight Milling Unit



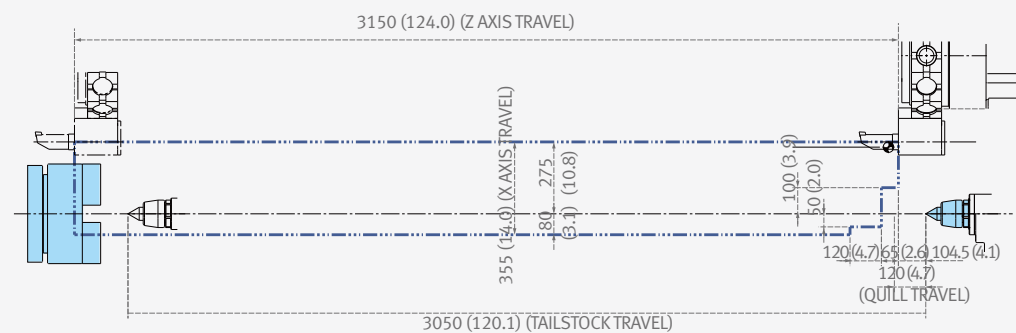
Angular Milling Unit



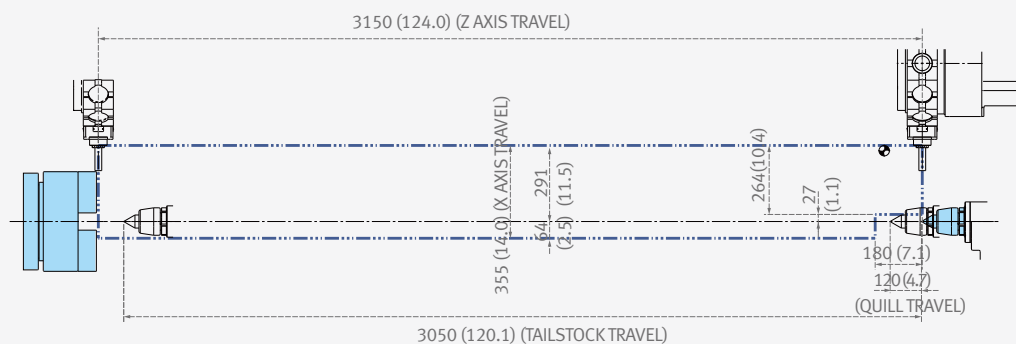
OD Tool Holder



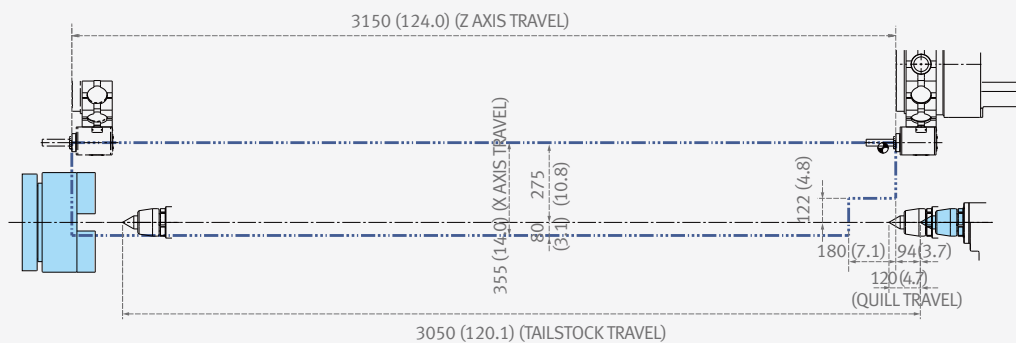
ID Tool Holder



Straight Milling Unit



Angular Milling Unit



Basic Information

Basic Structure
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Detailed Information

Options
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Diagrams
Specifications

Customer Support Service

Machine Specifications



Description			Unit	PUMA 4100A [LA / XLA]	PUMA 4100B [LB / XLB]	PUMA 4100C [LC / XLC]	PUMA 4100MA [LMA / XLMA]
Capacity	Swing over bed		mm (inch)	790 [790 / 770] (31.1 [31.1 / 30.3])			
	Swing over saddle		mm (inch)	590 (22.0)			
	Recom. turning diameter		mm (inch)	315 (12.4)	380 (15.0)		315 (12.4)
	Max. turning diameter		mm (inch)	550(21.7)			
	Max. turning length		mm (inch)	1074 [2124 / 3152] (42.3 [83.6 / 124.1])	1042 [2092 / 3120] (41.0 [82.4 / 122.8])	1002 [2052 / 3080] 39.4 [80.8 / 121.3])	1010 [2060 / 3100] (39.9 [81.1 / 122.0])
	Chuck size		inch	12	15	21	12
	Chuck work weight (including chuck)		kg (lb)	500 (1102.3)	870 (1918.0)	1400 (3086.5)	500 (1102.3)
	Shaft work weight (including chuck)		kg (lb)	1000 (2204.6)	1700 (3747.9)	2600 (5732.0)	1000 (2204.6)
	Bar working diameter		mm (inch)	102 (4.0)	116.5 (4.6)	165.5 (6.5)	102 (4.0)
Travels	Travel distance	X-axis	mm (inch)	352 (13.9)			
		Z-axis	mm (inch)	1105 [2155 / 3180] (43.5 [84.8 / 125.2])	1105 [2155 / 3150]		
		Y-axis	mm (inch)	-			
		C-axis	deg	-			
	Rapid traverse rate	X-axis	m/min (ipm)	16 (629.9)			
		Z-axis	m/min (ipm)	20 (787.4)			
		Y-axis	m/min (ipm)	-			
		C-axis	r/min	-			
Main spindle	Max. spindle speed		r/min	3000	2000	1500	3000
	Main spindle motor power (30min/Cont.)		kW (Hp)	35/26/22 (46.9/34.9/29.5) (S3 25%/30min/Cont.)		37/30 (49.6/40.2)	30/22 (40.2/29.5)
	Max. spindle torque		N·m (ft·lb)	1584 (1169.0)	2379 (1755.7)	3280 (2420.6)	832 (614.0)
	Spindle nose		ASA	A2-11		A1-15	A2-11
	Spindle bearing dia.(Front)		mm (inch)	160 (6.3)	180 (7.1)	240 (9.4)	160 (6.3)
	Max. Spindle through hole diameter		mm (inch)	115 (4.5)	132 (5.2)	181 (7.1)	115 (4.5)
	Min. spindle indexing angle (C-axis)		deg	-			
Turret	No. of tool stations		ea	12 {10}*	10 {12}*		
	OD tool size		mm (inch)	32 x 32 (1.3 x 1.3)			
	Max. boring bar size		mm (inch)	60 (2.4)			
	Turret indexing time (1 station swivel)		s	0.25			
	Max. rotary tool speed		r/min	-			
	Rotary tool motor power (S3 15%/S3 25%/30min/Cont.)		kW (Hp)	-			
	Max. rotary tool torque		N·m (ft·lb)	-			
Tailstock	Tailstock travel		mm(inch)	1000 [2050 / 3070] (39.4 [80.7 / 120.9])			
	Quill diameter		mm(inch)	120(4.7)			
	Quill travel		mm(inch)	120(4.7)			
	Quill bore taper		MT	MT#6 Live {MT#5 Built-in Dead}*			
Power Source	Electric power supply (rated capacity)		kVA	42.25 [43.17/ 44.98]		51.05 [51.97 / 53.78]	43.18 [45.06 / 44.98]
Machine Dimensions	Length		mm(inch)	4654 [5774 / 7024] (183.2 [227.3 / 276.5])			
	Width		mm(inch)	2056 [2275 / 2276] (80.9 [89.6 / 89.6])			
	Height		mm(inch)	2194 [2272 / 2335] (86.4 [89.4 / 91.9])			
	Weight		kg(lb)	9450 [10900 / 11900] (20833 [24030 / 26235])	9950 [11400 / 12400] (21936 [25132 / 27337])	10450 [11900 / 12900] (23038 [26235 / 28439])	9600 [11050 / 12050] (21164 [24361 / 26565])
Control	NC system		-				

PUMA 4100MB [LMB / XLMB]	PUMA 4100MC [LMC / XLMC]	PUMA 5100A [LA / XLA]	PUMA 5100B [LB / XLB]	PUMA 5100C [LC / XLC]	PUMA 5100MA [LMA / XLMA]	PUMA 5100MB [LMB / XLMB]	PUMA 5100LYA [XLYA]	PUMA 5100LYB [XLYB]	PUMA 5100LYC
		900 [900 / 870] (35.4 [35.4 / 34.3])						880 (34.6)	
		690 (27.2)						817 (32.2)	
380 (15.0)		380 (15.0)						380 (15.0)	
560(22.0)		650 (25.6)						550 (21.7)	
978 [2028 / 3068] (38.5 [79.8 / 120.8])	938 [1988 / 3028] (36.9 [78.3 / 119.2])	1032 [2082 / 3082] (40.6 [82.0 / 121.3])	992 [2042 / 3042] (39.1 [80.4 / 119.8])		992 [2042 / 3068] (39.1 [80.4 / 120.8])	952 [2002 / 3028] (37.4 [78.8 / 119.2])	2050 (80.7) [3070 (120.9)]	2020 (79.5) [3040 (119.7)]	
15	21	15	21	No chuck(order base)	15	21	15	21	No chuck(order base)
870 (1918.0)	1400 (3086.5)	870 (1918.0)	1400 (3086.5)	2000 (4409.2)	870 (1918.0)	1400 (3086.5)	870 (1918.0)	1400 (3086.5)	2000 (4409.2)
1700 (3747.9)	2600 (5732.0)	1700 (3747.9)	2600 (5732.0)	3600 (7936.6)	1700 (3747.9)	2600 (5732.0)	1700 (3747.9)	2600 (5732.0)	3600 (7936.6)
116.5 (4.6)	165.5 (6.5)	116.5 (4.6)	165.5 (6.5)	depends on applied chuck	116.5 (4.6)	165.5 (6.5)	116.5 (4.6)	165.5 (6.5)	depends on applied chuck
		362 (14.3)						355 (14.0)	
(43.5 [84.8 / 124.0])		1105 [2155 / 3150] (43.5 [84.8 / 124.0])						2100 (82.7) [3150 (124.0)]	
		-						150 (5.9)	
360		-				360		360	
		16 (629.9)						20 (787.4)	
		20 (787.4)						18 (708.7) [20 (787.4)]	
								10 (393.7)	
50		-						50 [100]	
2000	1500	2000	1500	1000	2000	1500	2000	1500	1000
30/22 (40.2/29.5)	37/30 (49.6/40.2)	37/30 (49.6/40.2)	45/37 (60.3/49.6)		37/30 (49.6/40.2)	45/37 (60.3/49.6)	37/30 (49.6/40.2)	45/37 (60.3/49.6)	
1611 (1188.9)	2432 (1794.8)	3280 (2420.6)	4038 (2980.0)	4463 (3293.7)	2432 (1794.8)	2957 (2182.3)	2431 (1794.1)	2957 (2182.3)	3268 (2411.8)
A2-11	A1-15	A2-11	A1-15	ISO 702-4 NO.20	A2-11	A1-15	A2-11	A1-15	ISO 702-4 NO.20
180 (7.1)	240 (9.4)	180 (7.1)	240 (9.4)	340 (13.4)	180 (7.1)	240 (9.4)	180 (7.1)	240 (9.4)	340 (13.4)
132 (5.2)	181 (7.1)	132 (5.2)	181 (7.1)	275 (10.8)	132 (5.2)	181 (7.1)	132 (5.2)	181 (7.1)	275 (10.8)
0.001		-				0.001		0.001	
12, BMT75P		10 {12}*				12, BMT75P		12, BMT75P	
25 x 25 (1.0 x 1.0)		32 x 32 (1.3 x 1.3)				25 x 25 {32 x 32} (1.0 x 1.0 {1.3 x 1.3})*		25 x 25 {32 x 32} (1.0 x 1.0 {1.3 x 1.3})*	
		80 (3.1)				60 (2.4)		60 (2.4)	
		0.25						0.25	
4000		-				4000		4000	
23/15/11/7.5 (30.8/20.1/14.8/10.1)		-				23/15/11/7.5 (30.8/20.1/14.8/10.1)		23/15/11/7.5 (30.8/20.1/14.8/10.1)	
146 (107.7)		-				146 (107.7)		146 (107.7)	
		1000 [2050 / 3070] (39.4 [80.7 / 120.9])						2050 (80.7)	
		120(4.7)						120(4.7)	
		120(4.7)						120(4.7)	
		MT#6 Live {MT#5 Built-in Dead}*						MT#6 Live {MT#5 Built-in Dead}*	
43.18 [45.06 / 44.98]	51.98 [53.86 / 53.78]	52.55 [52.55 / 53.78]	60.25 [60.25 / 59.36]		53.86 [53.86 / 53.78]	61.56 [61.56 / 59.36]	61.09	68.79	
		4759 [5879 / 7059] (187.4 [231.5 / 277.9])						5980 (235.4) [7302 (287.5)]	
		2056 [2275 / 2276] (80.9 [89.6 / 89.6])						2522 (99.3) [2632 (103.6)]	
		2194 [2272 / 2335] (86.4 [89.4 / 91.9])						2885 (113.6) [2937 (115.6)]	
10100 [11550 / 12550] (22266 [25463 / 27668])	10600 [12050 / 13050] (23369 [26565 / 28770])	10100 [11550 / 12550] (22266 [25463 / 27668])	10600 [12050 / 13050] (23369 [26565 / 28770])	10650 [12100 / 13100] (23479 [26676 / 28880])	10250 [11700 / 12700] (22597 [25794 / 27998])	10750 [12200 / 13200] (23699 [26896 / 29101])	13000 (28660) [16000 (35273)]		
DOOSAN-FANUC i / FANUC 32i (SIEMENS 828D / 840D)**									

* { } : Option

** : Please contact Doosan in advance

Note1 : Standard chuck is not included in PUMA 5100C series. Depends on customers' request, its applicable chuck is different. Tha't's way, some specifications are not fixed.

Basic Information

Basic Structure
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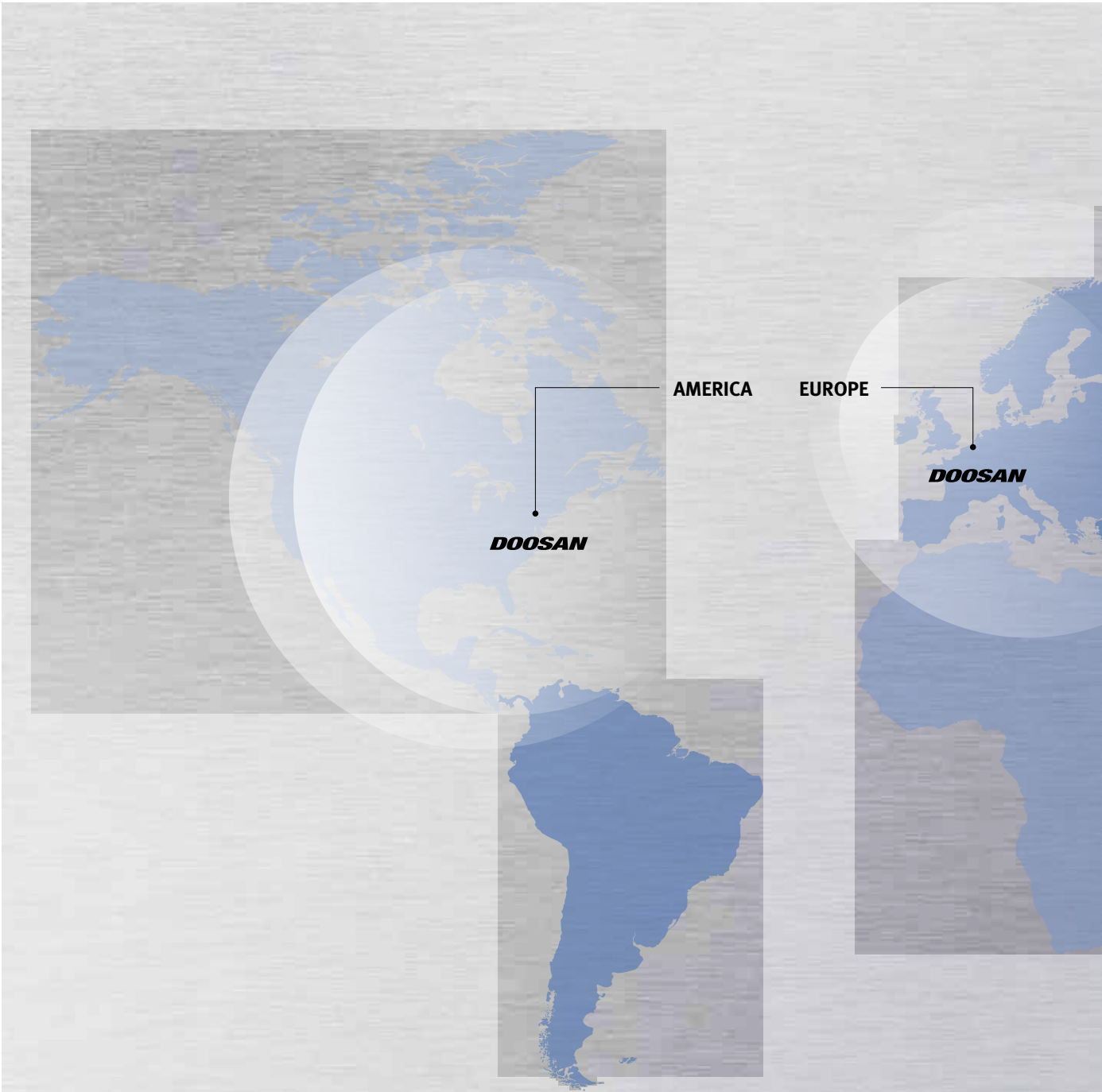
Customer Support Service



No.	Item			DOOSAN FANUC i			FANUC 32i		
				2-axis	M	Y	2-axis	M	Y
1	AXES CONTROL	Controlled axes		2(X,Z)	3(X,Z,C)	4(X,Z,C,Y)	2(X,Z)	3(X,Z,C)	4(X,Z,C,Y)
2		Simultaneously controlled axes		2 axes	3 axes	4 axes	2 axes	3 axes	4 axes
3		Cs contouring control		X	●	●	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	●	●	X	●	●
28		Cylindrical interpolation		X	●	●	X	●	●
29		Helical interpolation		X	○	●	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	FEED FUNCTION	Polygon machining with two spindles		X	●	●	X	○	○
37		High-speed skip	Input signal is 8 points.	○	○	○	○	○	○
38		2nd reference position return	G30	●	●	●	●	●	●
39		3rd/4th reference position return		●	●	●	○	○	○
40		Override cancel		●	●	●	●	●	●
41		AI contour control I		○	○	●	○	○	●
42		AI contour control II		○	○	○	○	○	○
43		Rapid traverse block overlap		●	●	●	●	●	●
44		Optional block skip	9 pieces	●	●	●	●	●	●
45		Absolute/incremental programming	Combined use in the same block	●	●	●	●	●	●
46		Diameter/Radius programming		●	●	●	●	●	●
47		Automatic coordinate system setting		●	●	●	●	●	●
48	PROGRAM INPUT	Workpiece coordinate system	Part program storage size	●	●	●	●	●	●
49		Workpiece coordinate system preset		●	●	●	○	○	○
50		Addition of workpiece coordinate system	48 pairs	X	X	X	○	○	○
51		Direct drawing dimension programming		●	●	●	●	●	●
52		G code system	A	●	●	●	●	●	●
53		G code system	B/C	●	●	●	●	●	●

No.	Item			DOOSAN FANUC i			FANUC 32i		
				2-axis	M	Y	2-axis	M	Y
54	PROGRAM INPUT	Chamfering/Corner R		●	●	●	○	○	○
55		Custom macro		●	●	●	●	●	●
56		Addition of custom macro common variables	#100 - #199, #500 - #999	●	●	●	○	○	○
57		Interruption type custom macro		●	●	●	○	○	○
58		Canned cycle		●	●	●	●	●	●
59		Multiple repetitive cycles	G70~G76	●	●	●	●	●	●
60		Multiple repetitive cycles II	Pocket profile	●	●	●	●	●	●
61		Canned cycle for drilling		●	●	●	●	●	●
62		Automatic corner override		X	X	X	○	○	○
63		Coordinate system shift		●	●	●	●	●	●
64		Direct input of coordinate system shift		●	●	●	●	●	●
65		Pattern data input		●	●	●	○	○	○
66	OPERATION GUIDANCE FUNCTION	EZ Guidei(Conversational Programming Solution)		●	●	●	●	●	●
67		EZ Operation package		●	●	●	●	●	●
68	AUXILIARY / SPINDLE SPEED FUNCTION	Constant surface speed control		●	●	●	●	●	●
69		Spindle override	0 - 150%	●	●	●	●	●	●
70		Spindle orientation		●	●	●	●	●	●
71		Rigid tap		●	●	●	●	●	●
72	TOOL FUNCTION / TOOL COMPENSATION	Arbitrary speed threading		○	○	○	○	○	○
73		Tool offset pairs	32-pairs	X	X	X	X	X	X
74			64-pairs	X	X	X	●	●	●
75			99-pairs	X	X	X	○	○	○
76			128-pairs	●	●	●	X	X	X
77			200-pairs	○	○	○	○	○	○
78			400-pairs	X	X	X	○	○	○
79			499-pairs	X	X	X	○	○	○
80			999-pairs	X	X	X	○	○	○
81		Tool offset		●	●	●	●	●	●
82		Tool radius/Tool nose radius compensation		●	●	●	●	●	●
83		Tool geometry/wear compensation		●	●	●	●	●	●
84		Automatic tool offset		●	●	●	●	●	●
85		Direct input of offset value measured B		●	●	●	●	●	●
86		Tool life management		●	●	●	●	●	●
87	ACCURACY COMPENSATION FUNCTION	Backlash compensation for each rapid traverse and cutting feed		●	●	●	●	●	●
88		Stored pitch error compensation		○	○	○	○	○	○
89	EDITING OPERATION	Part program storage size & Number of registerable programs	640M(256KB)_500 programs	X	X	X	●	●	●
90			1280M(512KB)_1000 programs	X	X	X	○	○	○
91			2560M(1MB)_1000 programs	X	X	X	○	○	○
92			5120M(2MB)_1000 programs	X	X	X	○	○	○
93			1280M(512KB)_400 programs	●	●	●	X	X	X
94			5120M(2MB)_400 programs	○	○	○	X	X	X
95		Program protect		●	●	●	●	●	●
96	DATA INPUT / OUTPUT	Password function		●	●	●	●	●	●
97		Fast data server		○	○	○	○	○	○
98		External data input		●	●	●	○	○	○
99		Memory card input/output		●	●	●	●	●	●
100		USB memory input/output		●	●	●	●	●	●
101		Automatic data backup		●	●	●	●	●	●
102	INTERFACE FUNCTION	Embedded Ethernet		●	●	●	●	●	●
103		Fast Ethernet		○	○	○	○	○	○
104	OTHERS	Display unit	10.4" color LCD	●	●	●	●	●	●
105			15" color LCD	○	○	○	○	○	○
106		Robot interface	with PMC I/O module	○	○	○	○	○	○
107			with PROFIBUS-DP	○	○	○	○	○	○

Responding to Customers Anytime, Anywhere



Global Sales and Service Support Network

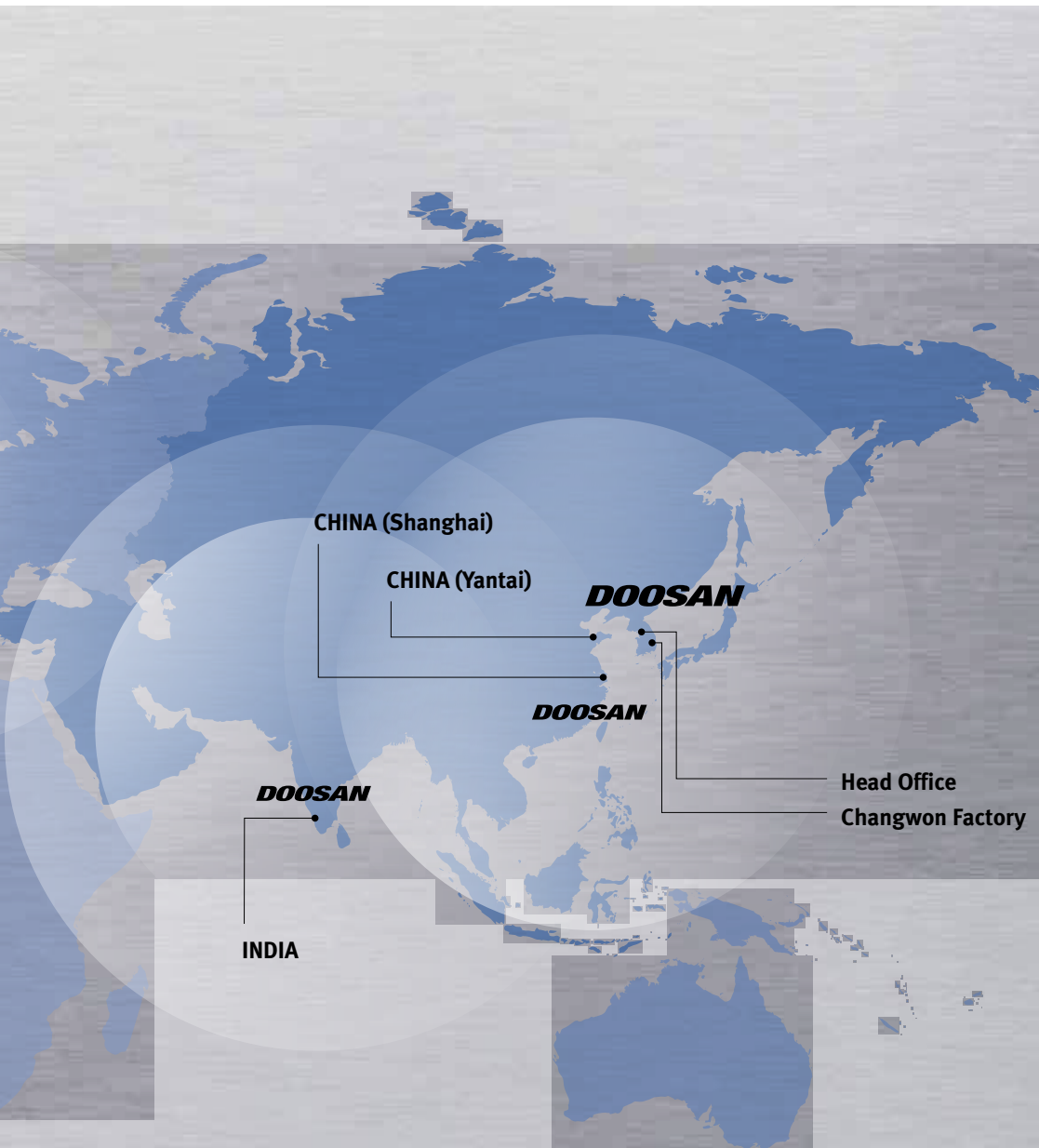
Corporations	Dealer Networks	Technical Centers	Service Post	Factories
4	164	51	198	3

Technical Center: Sales Support, Service Support, Parts Support

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

Doosan machine tools provides a system-based professional support service before and after the machine tool sale by responding quickly and efficiently to customers' demands.

By supplying spare parts, product training, field service and technical support, we can provide top class support to our customers around the world.



Customer Support Service

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

Supplying Parts



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

Field Services



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

Technical Support



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

Training



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

Major Specifications

PUMA 4100 / 5100 series



Description		Unit	PUMA 4100 series		PUMA 5100 series		PUMA 5100LY series
			A / B / C	MA / MB / MC	A / B / C	MA / MB	A / B / C
Max. turning diameter		mm (inch)	550 (21.7)	560 (22.0)	650 (25.6)		550 (21.7)
Max. turning length	Std. model	mm (inch)	1074 / 1042 / 1002 (42.3 / 41.0 / 39.4)	1010 / 978 / 938 (39.8 / 38.5 / 36.9)	1032 / 992 / 992 (40.6 / 39.1 / 39.1)	992 / 952 (39.1 / 37.5)	-
	L-model	mm (inch)	2124 / 2092 / 2052 (83.6 / 82.4 / 80.8)	2060 / 2028 / 1988 (81.1 / 79.8 / 78.3)	2082 / 2042 / 2042 (82.0 / 80.4 / 80.4)	2042 / 2002 (80.4 / 78.8)	2050 / 2020 / 2020 (80.7 / 79.5 / 79.5)
	XL-model	mm (inch)	3152 / 3120 / 3080 (124.1 / 122.8 / 121.3)	3100 / 3068 / 3028 (122.0 / 120.8 / 119.2)	3082 / 3042 / 3042 (121.3 / 119.8 / 119.8)	3068 / 3028 (120.8 / 119.2)	3070 / 3040 (120.9 / 119.7)
Chuck size		inch	12 / 15 / 21		15 / 21 / Order made		15 / 21 / Order made
Spindle through hole diameter		mm (inch)	115 / 132 / 181 (4.5 / 5.2 / 7.1)		132 / 181 / 275 (5.2 / 7.1 / 10.8)	132 / 181 (5.2 / 7.1)	132 / 181 / 275 (5.2 / 7.1 / 10.8)
Max. spindle speed		r/min	3000 / 2000 / 1500		2000 / 1500 / 1000	2000 / 1500	2000 / 1500 / 1000

* The other NC system application instead of FANUC should be checked with Doosan

Doosan Machine Tools

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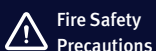
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* For more details, please contact Doosan Machine Tools.

* The specifications and information above-mentioned may be changed without prior notice.

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There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting use coolants and modifying the machine without the consent of the manufacturer. Please check the SAFETY GUIDANCE carefully before using the machine.

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