DN SOLUTIONS

MEDIUM TO LARGE TURNING CENTERS WITH
2-AXIS THROUGH TO Y-AXIS MACHINING CAPABILITIES

PUMA 4100·5100

PUMA 4100/L/LM/M/XL/XLM
PUMA 5100/L/LM/LY/M/XL/XLM/XLY

PUMA 4100·5100

PUMA 4100/5100 series machines are horizontal turning centers designed for machining medium-to-large size workpieces. They are powerful machines using a two-step gearbox and high torque motors and feature a rigid box guideway structure. Selected models can process complex workpieces by using the optional Y-axis function and, optional DN Solutions threading functions, especially useful for oil and gas parts, make PUMA 4100/5100 machines the ideal solution for many industries and applications.

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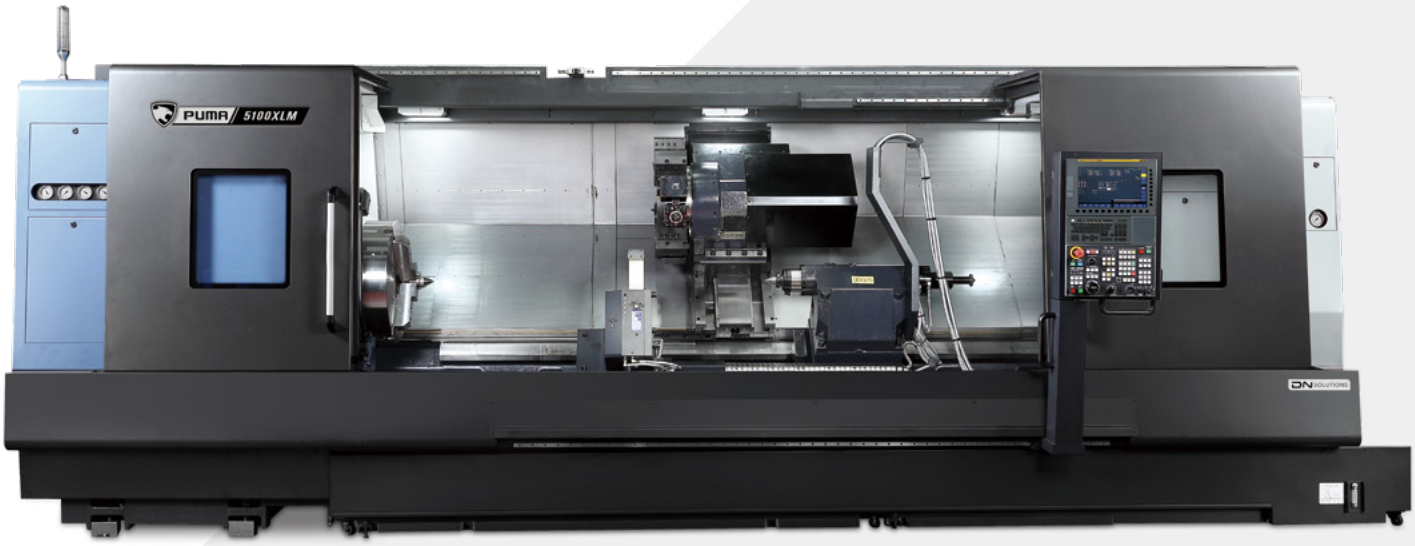


PRODUCT LINE-UP

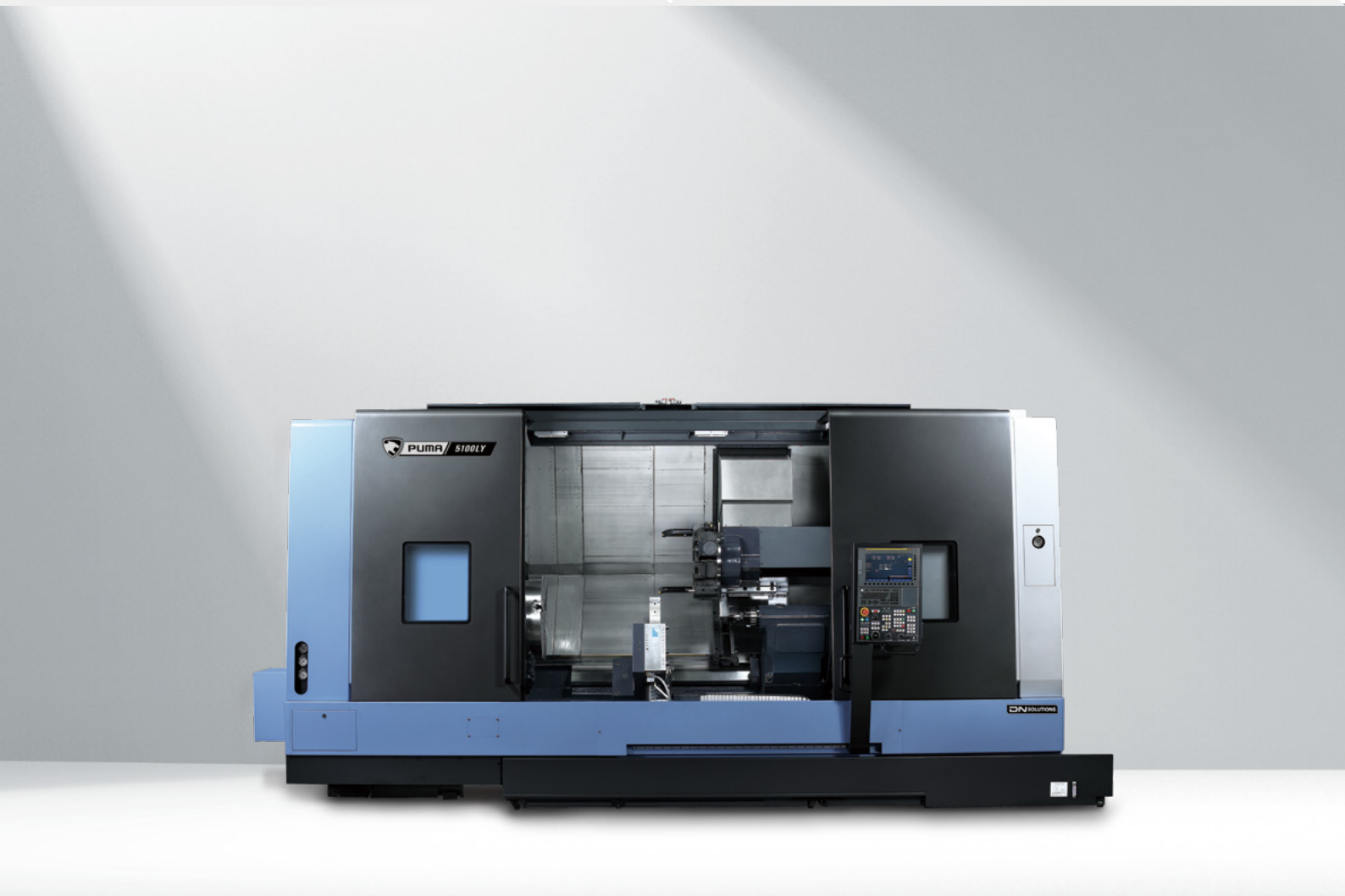
For machining a range of different, medium-to-large sized workpieces, there are 38 Puma 4100/5100 models available. The product range comprises turning centers with chuck sizes from 12” to 21” in diameter with optional big bore spindle capability, 1m/2m/3m turning lengths and 2-axis to Y-axis configurations.

POWERFUL MACHINING CAPABILITY

PUMA 4100/5100 machines have powerful machining capabilities that optimize their cutting performance thanks to their two-speed gearboxes, hightorque spindle motors and stable box guideway structures.

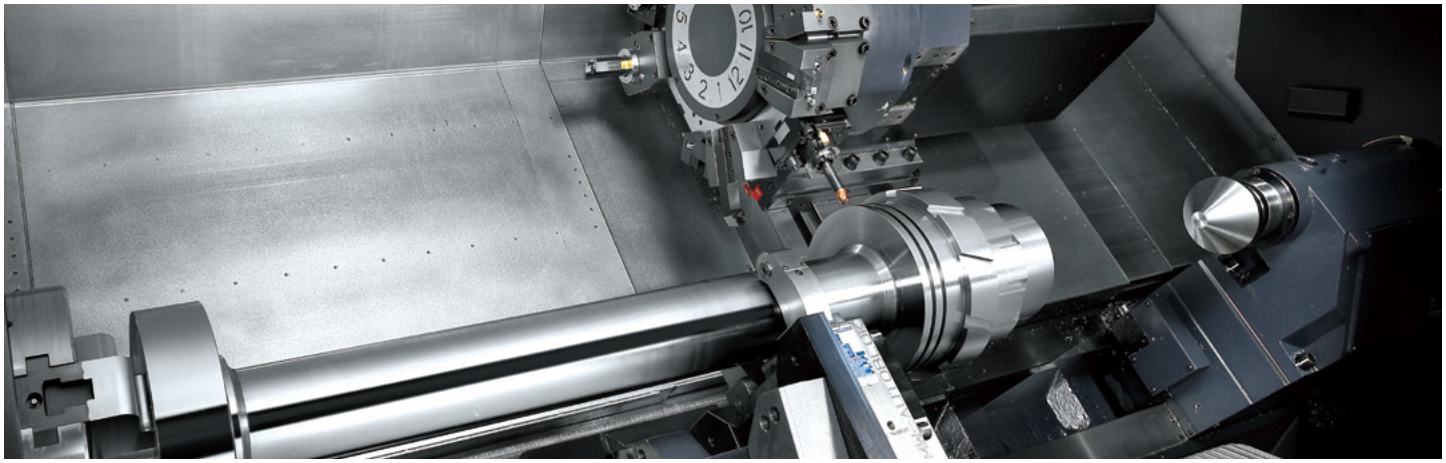
IMPROVED EFFICIENCY

PUMA 4100/5100 machines can process complex parts in just one set up by applying the optional Y-axis function. In addition, the newly-designed operation panel and optional threading functions optimize efficiency.



BASIC STRUCTURE

Product range is extensive and includes 2-axis models up to Y-axis machines, which enable large, complex parts to be completed in a single set up.



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	○	-	-	○	-	○	○	-	-

SPINDLE

The gearbox design gives PUMA 4100/5100 spindles unparalleled power and torque, boosting productivity and process reliability during heavy-duty machining operations.

Max. spindle speed

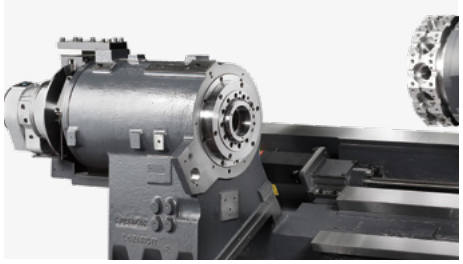
1500 r/min

Max. spindle power (30min/Cont.)

45/37 kW (60.3/49.6 Hp)

Max. spindle torque

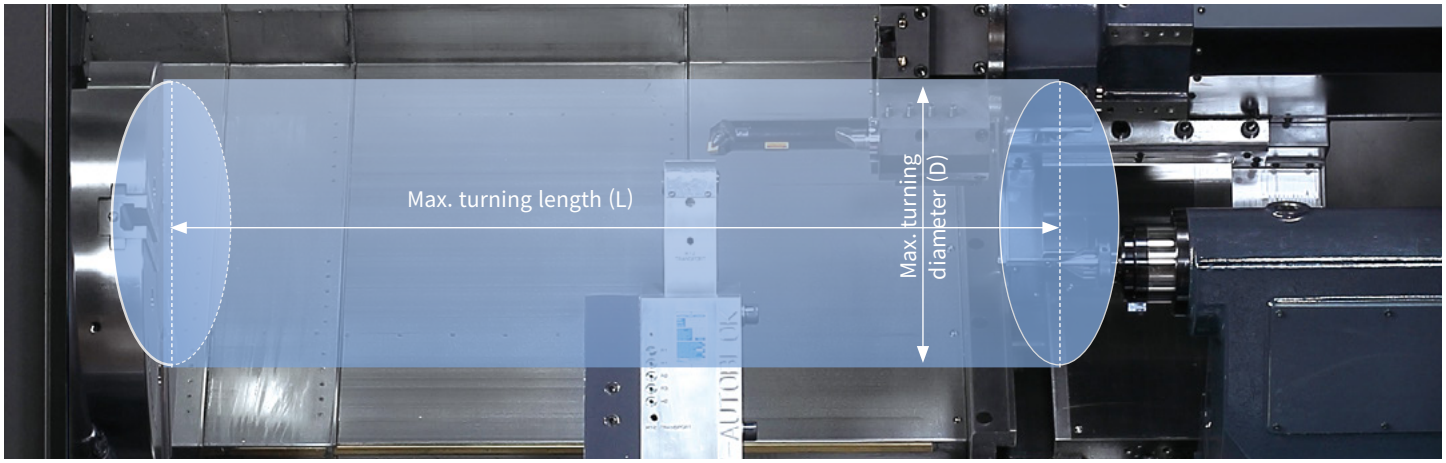
4038 N·m (2980.0 ft-lb)



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)

MACHINING AREA

The largest working envelopes in their class with maximum turning diameters up to Ø650 mm and maximum turning lengths of 3m.



Unit : mm (inch)

Max. turning diameter

Ø650 mm
(ø25.6 inch)

Max. turning length

3152 mm
(ø124.1 inch)

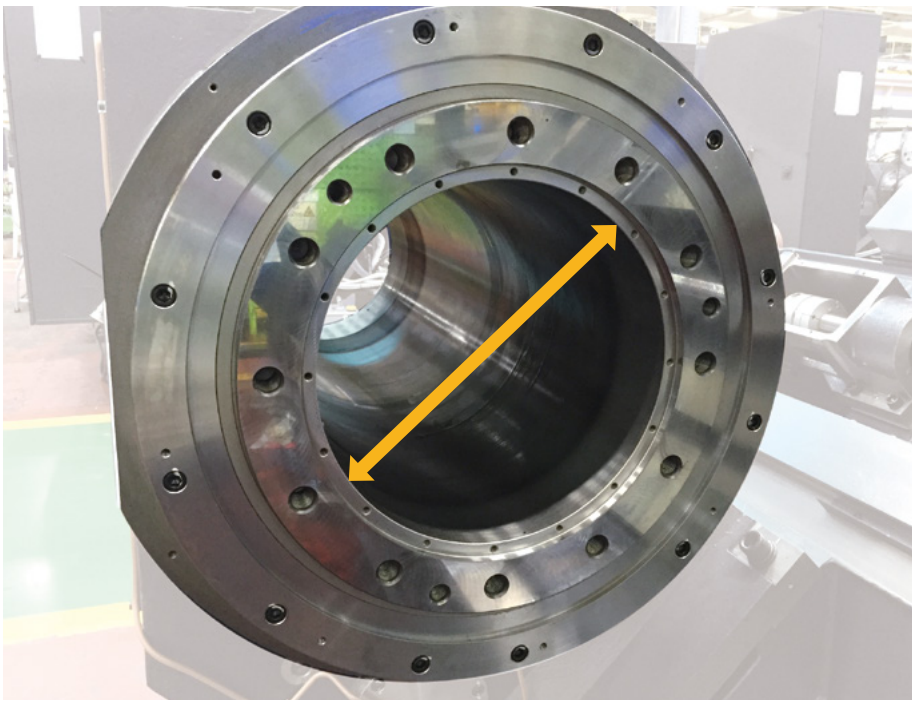
Function	Model	Max. "D"	Max. "L"
2-axis (for Turning)	PUMA 4100A / LA / XLA	550 (21.7)	1074 /2124 /3152 (42.3 / 83.6 / 124.1)
	PUMA 4100B / LB / XLB	550 (21.7)	1042 / 2092 /3120 (41.0 / 82.4 / 122.8)
	PUMA 4100C / LC / XLC	550 (21.7)	1002 / 2052 /3080 (39.4 / 80.8 / 121.3)
	PUMA 5100A / LA / XLA	650 (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	550 (21.7)	1010 / 2060 / 3100 (39.8 / 81.1 / 122.0)
	PUMA 4100MB / LMB / XLMB	550 (21.7)	978 / 2028 / 3068 (38.5 / 79.8 / 120.8)
	PUMA 4100MC / LMC / XLMC	550 (21.7)	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)

Max. spindle through hole diameter

Ø275 mm
(ø10.8 inch)

Machines are available with a range of spindle-through-bore sizes to provide the ideal solution for processing different pipe diameters.

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)

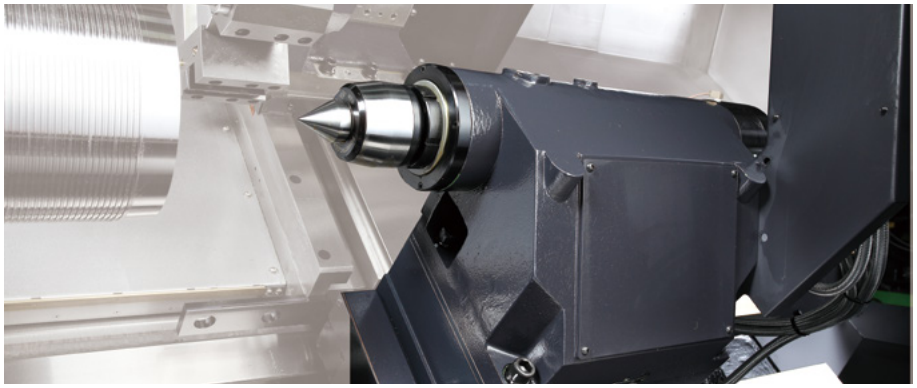


TAILSTOCK

Highly-rigid hydraulic tailstocks are clamped to bed slide-ways to provide stable support when machining long workpieces.

Tailstock travels

1000 / **2050** / **3070** mm
(39.4 / 80.7 / 120.9 inch)



Model	Tailstock travel	Quill diameter	Quill travel	Std.	Opt.
PUMA 4100 / 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-motors that ensure fast and reliable tool selection. The unique BMT85P turret design is used on M- and Y- models and boost these machines' heavy-duty milling performance.

2-axis model

No. of tool stations

PUMA 4100A / LA / XLA
12 {10 OPTION} ea

PUMA 4100B / LB / XLB / C / LC / XLC
PUMA 5100 series
10 {12 OPTION} ea

M,Y model

Tool holder type

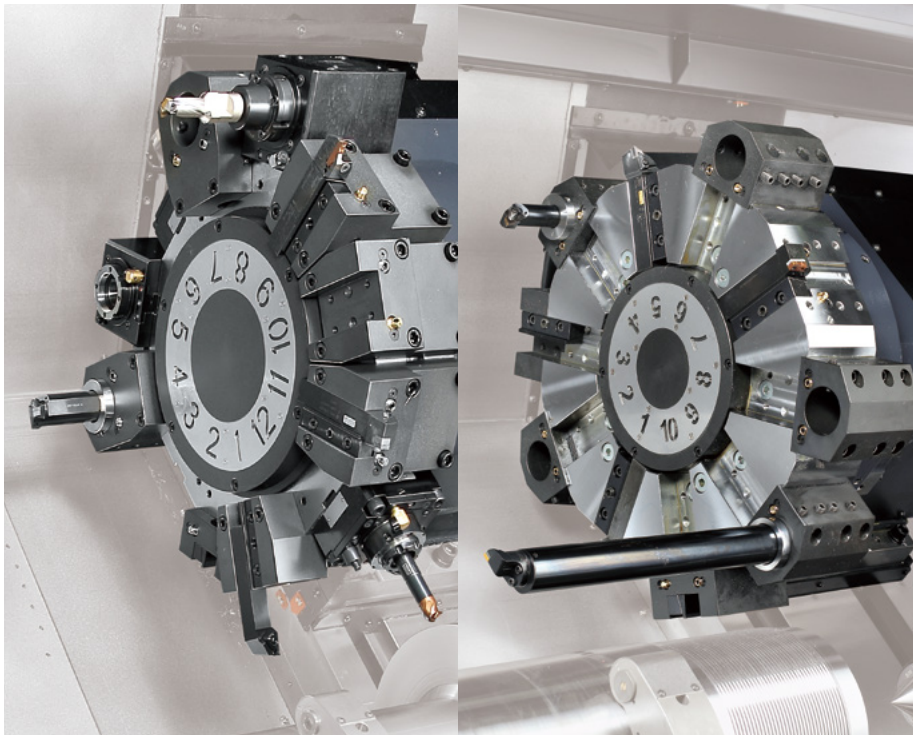
BMT 75P

No. of tool station

12 {24 OPTION} ea

Max. rotary tool speed

4000 {8000 OPTION} r/min



STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

Description	Features			PUMA 4100 series						PUMA 5100 series							
				A	B	C	MA	MB	MC	A	B	C	MA	MB	LYA/XLYA	LYB/XLYB	LYC
CHUCK	None			○	○	○	○	○	○	○	○	●	○	○	○	○	●
	12 Inch			●	X	X	●	X	X	X	X	X	X	X	X	X	X
	15 Inch			X	●	X	X	●	X	●	X	X	●	X	●	X	X
	18 Inch			X	○	X	X	○	X	○	X	X	○	X	X	X	X
	21 Inch			X	X	●	X	X	●	X	●	X	X	●	X	●	X
	24 Inch			X	X	X	X	X	X	X	○	X	X	○	X	○	X
	Special Chuck			△	△	△	△	△	△	△	△	△	△	△	△	△	△
JAW	Soft Jaws			●	●	●	●	●	●	●	●	○	●	●	●	●	○
	Hardened & ground hard jaws			○	○	○	○	○	○	○	○	○	○	○	○	○	○
CHUCKING OPTION	Single pressure chucking			●	●	●	●	●	●	●	●	○	●	●	●	●	○
	Dual pressure chucking			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Chuck clamp confirmation			●	●	●	●	●	●	●	●	○	●	●	●	●	○
TURRET	10ST			○	●	●	-	-	-	●	●	●	-	-	-	-	-
	12ST			●	○	○	-	-	-	○	○	○	-	-	-	-	-
	12ST_BMT75P_4,000 r/min			-	-	-	●	●	●	-	-	-	●	●	●	●	●
	12ST_BMT75P_8,000 r/min			-	-	-	○	○	○	-	-	-	○	○	○	○	○
	12ST(24 POSITION)_BMT75P_4,000 r/min			-	-	-	○	○	○	-	-	-	○	○	○	○	○
	12ST(24 POSITION)_BMT75P_8,000 r/min			-	-	-	○	○	○	-	-	-	○	○	○	○	○
STEADY REST*	Specification	Manual	TYPE 1 (Ø25 ~ Ø200)	○	○	○	○	○	○	X	X	X	X	X	X	X	X
			TYPE 2 (Ø35 ~ Ø330)	X	X	X	X	X	X	○	○	○	○	○	○	○	○
			TYPE 2 (Ø50 ~ Ø260)	○	○	○	○	○	○	○	○	○	○	○	X	X	X
		Prammable	STA-3(Ø16- Ø 152)	○	○	○	○	○	○	X	X	X	X	X	X	X	X
			STA-3.1(Ø 20- Ø 165)	○	○	○	○	○	○	X	X	X	X	X	X	X	X
			STA-4(Ø 30- Ø 245)	○	○	○	○	○	○	○	○	○	○	○	X	X	X
			STA-5(Ø 45- Ø 310)	X	X	X	X	X	X	○	○	○	○	○	X	X	X
			SLU-3 (Ø16 ~ Ø152)	○	○	○	○	○	○	X	X	X	X	X	X	X	X
			SLU-3.1 (Ø20 ~ Ø165)	○	○	○	○	○	○	X	X	X	X	X	X	X	X
			SLU-4 (Ø30 ~ Ø245)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
			SLU-5 (Ø45 ~ Ø310)	X	X	X	X	X	X	○	○	○	○	○	○	○	○
			AX-4(Ø12-Ø160)	○	○	○	○	○	X	X	X	X	X	X	X	X	X
			AX-5(Ø20-Ø200)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
			AX-6(Ø30-Ø255)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
			AX-7(Ø45-Ø320)	X	X	X	X	X	X	X	X	X	X	X	○	○	○
			AX-8(Ø85-Ø360)	X	X	X	X	X	X	X	X	X	X	X	○	○	○
TAILSTOCK	MANUAL			●	●	●	●	●	●	●	●	●	●	●	X	X	X
	PROGRAMMABLE			○	○	○	○	○	○	○	○	○	○	○	●	●	●
	LIVE CENTER			●	●	●	●	●	●	●	●	●	●	●	●	●	●
	BUILT-IN-TYPE DEAD CENTER			○	○	○	○	○	○	○	○	○	○	○	○	○	○
COOLANT PUMP	1.5 bar			●	●	●	●	●	●	●	●	●	●	●	X	X	X
	4.5 bar			○	○	○	○	○	○	○	○	○	○	○	●	●	●
	7/10/14.5/20/70 bar			○	○	○	○	○	○	○	○	○	○	○	○	○	○
COOLANT OPTIONS	Oil skimmer			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Water soluble Coolant Chiller**			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Coolant pressure switch			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Coolant level switch : Sensing level - Low			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Coolant gun			○	○	○	○	○	○	○	○	○	○	○	○	○	○
CHIP DISPOSAL	Chip conveyor (Right side)			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Chip bucket			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Air blower for chuck			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Mist collector interface (Duct only)			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Integrated mist collector			○	○	○	○	○	○	○	○	○	○	○	○	○	○
MEASUREMENT & AUTOMATION	Tool setter	Manual		X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Automatic		○	○	○	○	○	○	○	○	X	○	X	○	○	X
		Removable		○	○	X	○	○	X	○	X	○	X	○	X	X	○
	Auto door			○	○	○	○	○	○	○	○	○	○	○	○	○	○
OTHERS	DN Solutions Tool load monitoring system			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Signal tower			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Air gun			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Automatic power off			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Quick change tooling(CAPTO)			○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Sketch-turn S/W			○	○	○	○	○	○	○	○	○	○	○	○	○	○

Description	Features	PUMA 4100 series					
		A/LA/MA/LMA	B/LB/MB/LMB	C/LC/MC/LMC	XLA/XLMA	XLB/XLMB	XLC/XLMC
Customized Special Option	NON POWERED TAIL SPINDLE	○	○	○	○	○	○
	CAPTO TOOL C6	○	○	○	○	○	○
	COOLANT CHILLER	○	○	○	○	○	○
	THROUGH SPINDLE COOLANT	○	○	○	○	○	○
	PRO S/REST BASE/BKT_ATLING AX7 (45-320)	○	○	○	○	○	○
	PRO S/REST BASE/BKT_ATLING AX8 (85-360)	X	X	X	X	X	X
	SERVO DRIVEN S/REST	X	X	X	○	○	○
	SPIN WINDOW SYSTEM	○	○	○	○	○	○
	HOLDER INTERFACE WORK PROOF OLP40	○	○	○	○	○	○
	TWIN CHUCK	X	X	○	X	X	○

Description	Features	PUMA 5100 series														
		A/LA	B/LB	C/LC	MA/LMA	MB/LMB	XLA	XLB	XLC	XLMA	XLMB	LYA	LYB	LYC	XLYA	XLYB
Customized Special Option	NON POWERED TAIL SPINDLE	○	○	○	○	○	○	○	○	○	○	X	X	X	X	X
	CAPTO TOOL C6	○	○	○	○	○	○	○	○	○	○	X	X	X	X	X
	COOLANT CHILLER	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	THROUGH SPINDLE COOLANT	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	PRO S/REST BASE/BKT_ATLING AX7 (45-320)	X	X	X	○	○	X	X	X	○	○	X	X	X	X	X
	PRO S/REST BASE/BKT_ATLING AX8 (85-360)	○	○	○	X	X	○	○	○	X	X	X	X	X	X	X
	SERVO DRIVEN S/REST	X	X	X	X	X	○	○	○	○	○	X	X	X	○	○
	SPIN WINDOW SYSTEM	○	○	○	○	○	○	○	○	○	○	X	X	X	X	X
	HOLDER INTERFACE WORK PROOF OLP40	○	○	○	○	○	○	○	○	○	○	X	X	X	X	X
	TWIN CHUCK	X	X	○	X	○	X	X	○	X	○	X	○	○	X	○

** 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*

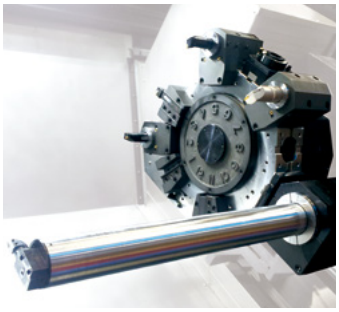
● *Standard* ○ *Optional* *X N/A*

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

Long boring bar OPTION

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

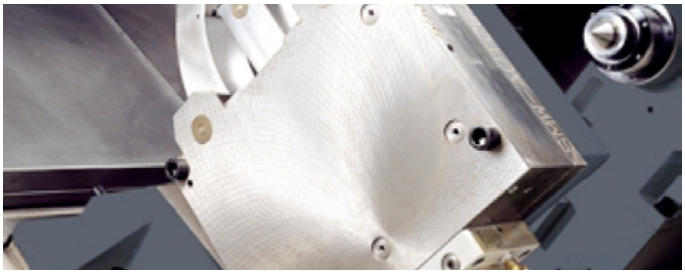


Twin chucking OPTION

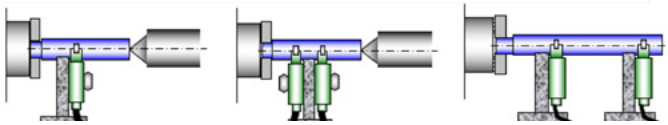
For more stable pipe threading process, twin chucking option(manual or pneumatic) is available. Please consult with DN Solutions specialist for details.

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

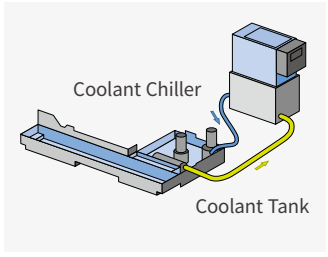


Quick change CAPTO OPTION

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

Coolant chiller (Recommendation) OPTION

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



Coolant tank

DN Solutions'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

Hinged belt type*

Most common type of chip conveyor. Appropriate for steel materials generating chips over 30mm.

Magnetic type

Chip conveyor with a magnet: Appropriate for machining cast iron and the generation of fine chips.

Material / Chip conveyor type		Carbon steel			Cast iron		Aluminium		
		Long	Short	Needle	Short	Sludge	Long	Short	Needle
Hinged belt type*		○	△	X	△	X	○	△	X
Scrapper type	Normal	X	○	△	○	△	X	△	X
	Magnetic	X	○	○	○	○	-	-	-

● Suitable ○ Possible X Not suitable

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.

FANUC 31i-B 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 OPTION

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.

SKETCH-TURN OPTION

DN Solutions Conversational programming software for PC

- Easy to learn for beginners
- Time savings in programming
- Reduce processing cycle time

NUMERIC CONTROL SPECIFICATIONS

FANUC

Description	Item	Specifications	2-Axis DN Solutions Fanuc i Plus	M DN Solutions Fanuc i Plus	Y DN Solutions Fanuc i Plus
Controlled axis	Controlled axes		2(X,Z)	3(X,Z,C)	4(X,Z,C,Y)
	Simultaneously controlled axes		2 axes	3 axes	4 axes
Data input/ output	Fast data server		○	○	○
	Memory card input/output		●	●	●
	USB memory input/output		●	●	●
	Larger capacity memory_2GB	Note *2) Available Option only with 15" Touch LCD (iHMI Only)	○ *2)	○ *2)	X
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)	○ *1)
	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	640M(256KB)_500 programs	X	X	X
		5120M(2MB)_1000 programs	●	●	●

Network: FANUC MTConnect and FANUC OPC UA available.

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

CONVENIENT OPERATION

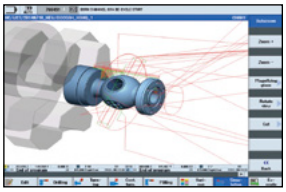
Siemens S828D

15.inch display + New OP

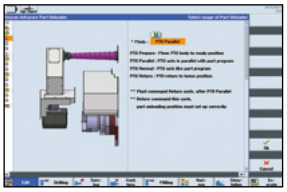
Siemens 828D' operation panel enhances operating convenience by incorporating common-design buttons and layout. It features a Qwerty keyboard for fast and easy data input and operation.

- 15.6 inch display
- USB (standard)
- QWERTY keyboard

Conversational convenient function



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

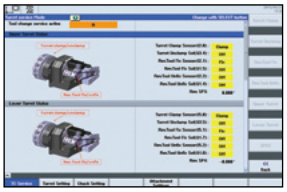


Shop-turn mode
[various]
⬇
[attachments]

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

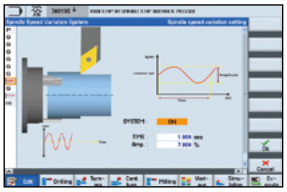
[Custom]
⬇
[Protection zones]

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



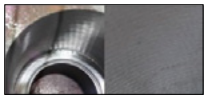
[offset]
⬇
[operating parameter]
⬇
[TC service]

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.

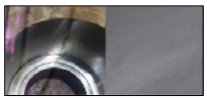


[various]
⬇
[attachment]
⬇
[DSSV]

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

Description	Item	Specifications	2-Axis S828D	M S828D	S S828D	MS S828D	Y S828D	SY S828D
Controlled axis	Controlled axes		X,Z,SP	X,Z,C,R	X,Z,C,C2,B	X,Z,C,R,C2,B	X,Z,C,R,Y	X,Z,C,R,C2,Y,B
	Simultaneously controlled axes		4 axes	4 axes	4 axes	4 axes	4 axes	4 axes
Data input/output	Memory card input/output		X	X	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	X	X	X	X
	Top surface		X	X	X	X	X	X
	Look ahead number of block		1	1	1	1	1	1
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	●	●	●	●	●	●
	Part program storage size	CNC user memory 5MB	●	●	●	●	●	●
		CNC user memory 100 MB	○	○	○	○	○	○
		CNC user memory 6GB	X	X	X	X	X	X
		CNC user memory 40GB (with PCU or IPC)	X	X	X	X	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	X	X	X	X

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

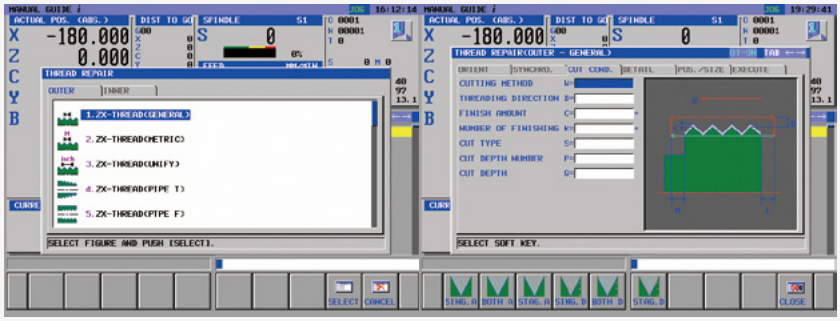
STABLE THREADING PERFORMANCE

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

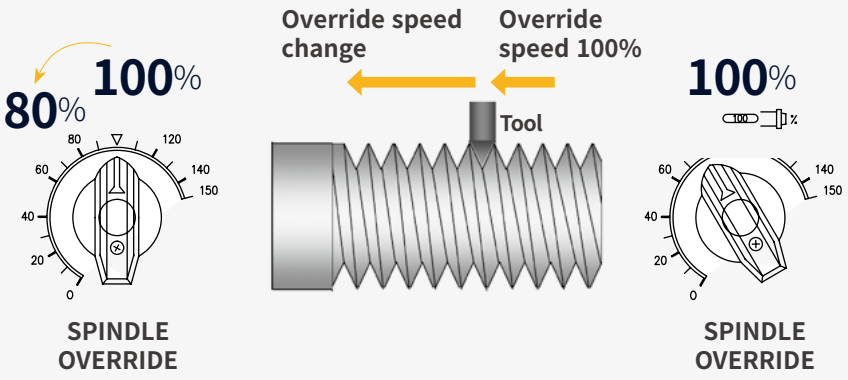
This function allows users to repair threads even when the original program is not available. This is a standard Fanuc NC function.



Arbitrary speed threading

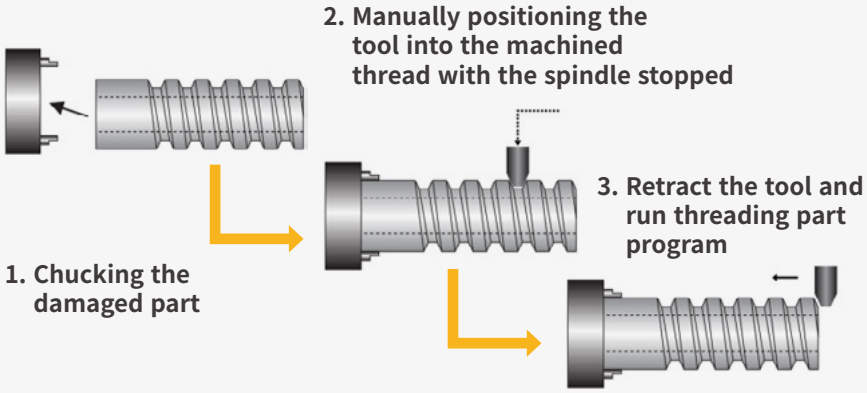
OPTION

This function allows users to control and override spindle speeds in order to set them to produce/replicate the best thread quality



Re-machining function

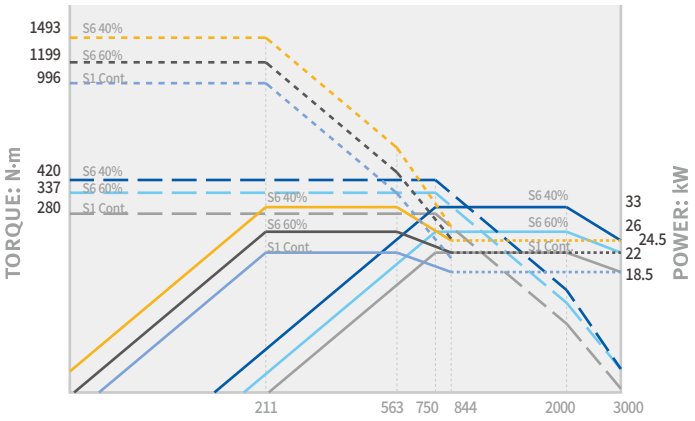
This function is included in the arbitrary speed threading. It allows users to re-machine damaged threads using the existing program.



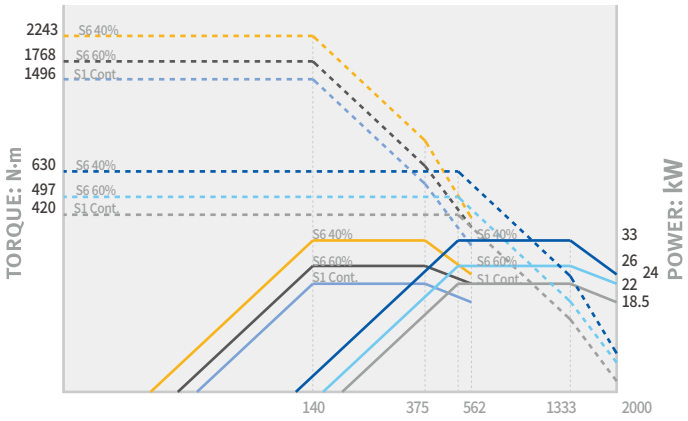
POWER | TORQUE

SIEMENS

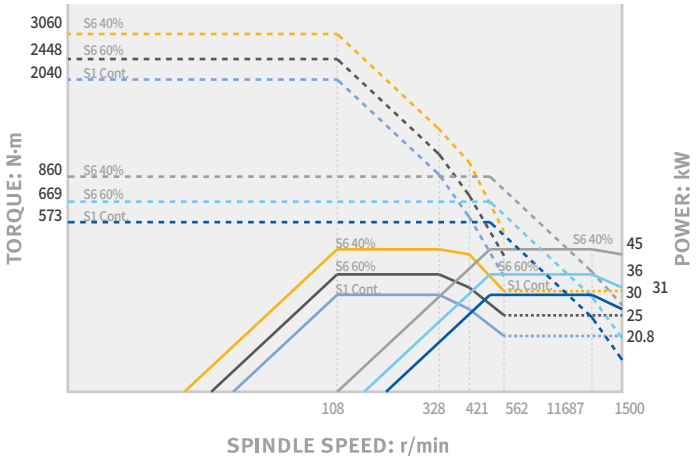
PUMA 4100A / LA / XLA



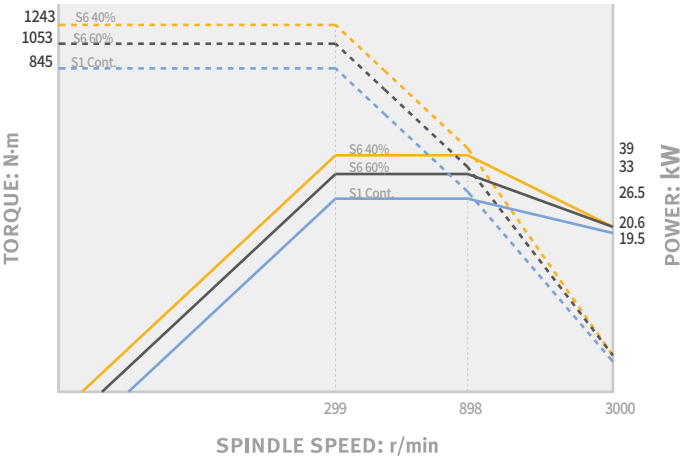
PUMA 4100B / LB / XLB



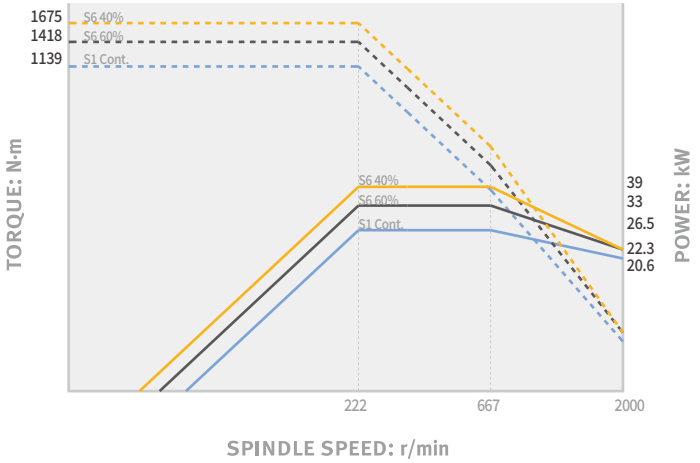
PUMA 4100C / LC / XLC



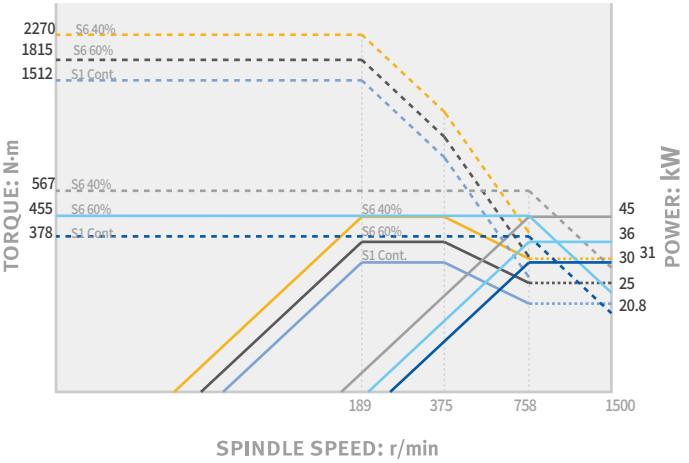
PUMA 4100MA / LMA / XLMA



PUMA 4100MB / LMB / XLMB



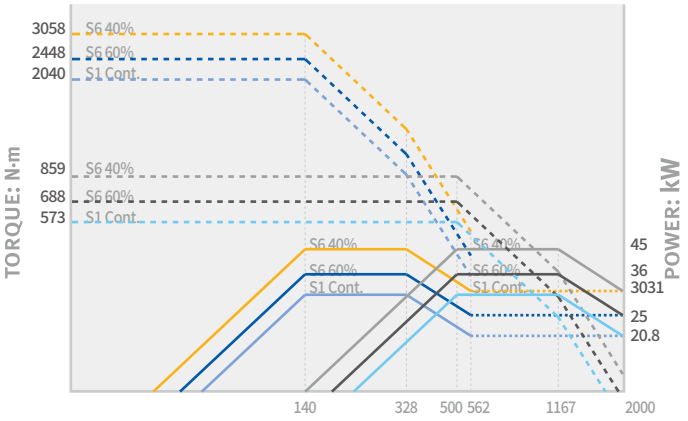
PUMA 4100MC / LMC / XLMC



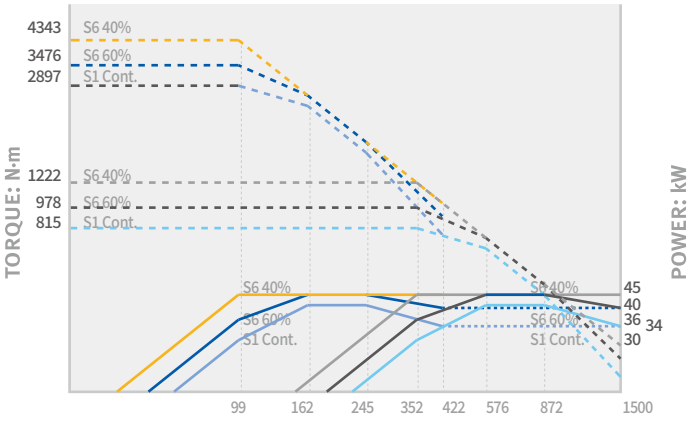
POWER | TORQUE

SIEMENS

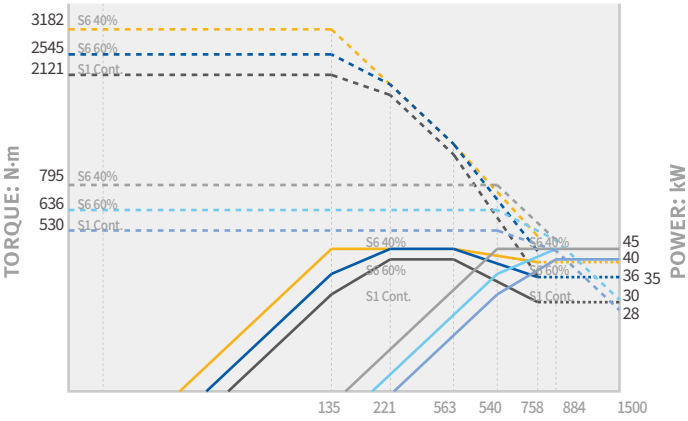
PUMA 5100A / LA / XLA



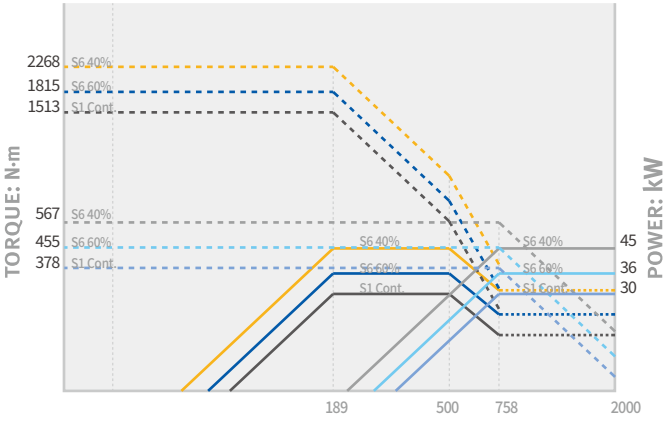
PUMA 5100B / LB / XLB



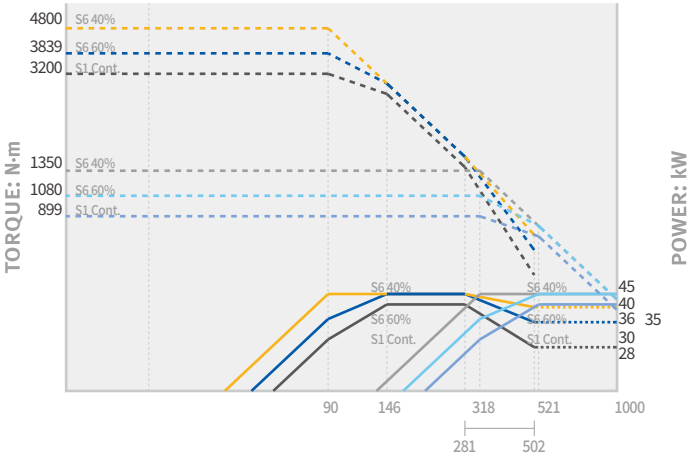
PUMA 5100C / LC / XLC



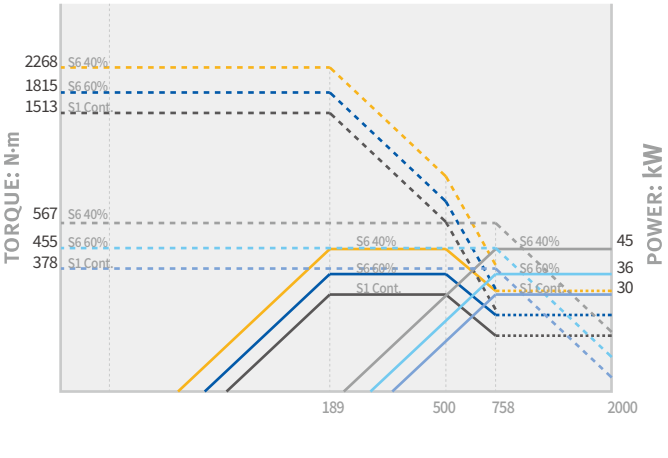
PUMA 5100MA / LMA / XLMA



PUMA 5100MB / LMB / XLB

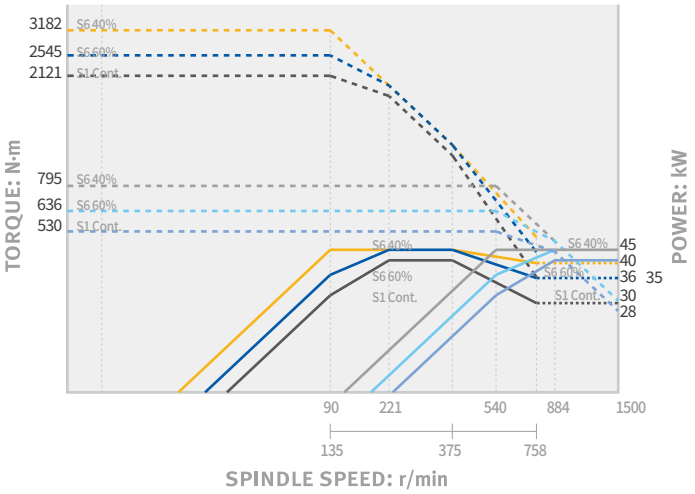


PUMA 5100LYA / XLYA

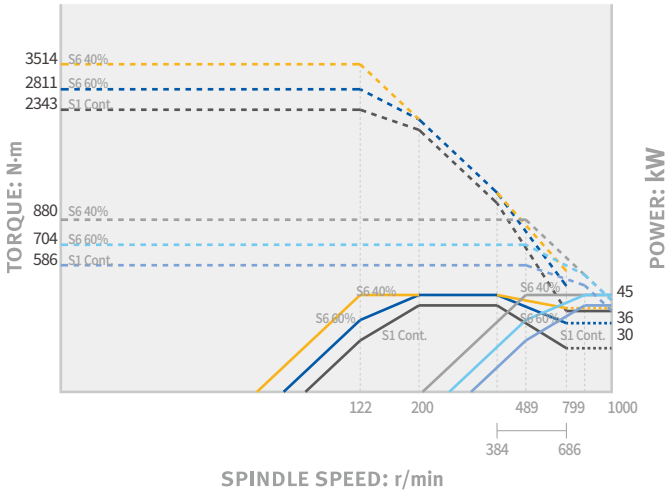


POWER | TORQUE

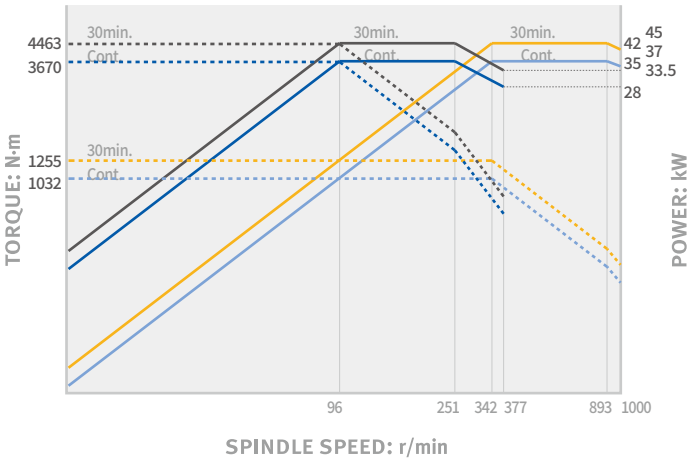
PUMA 5100LYB / XLYB **SIEMENS**



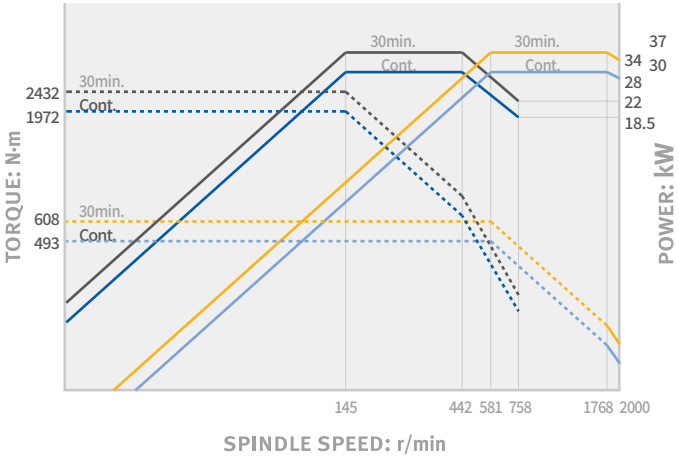
PUMA 5100LYC **SIEMENS**



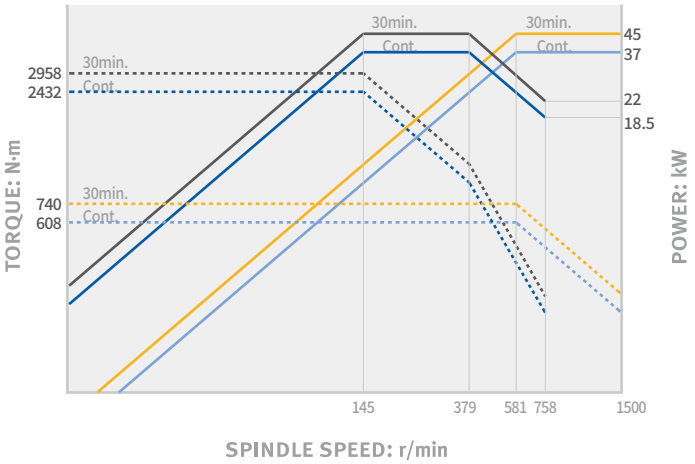
PUMA 5100C / LC / XLC **FANUC**



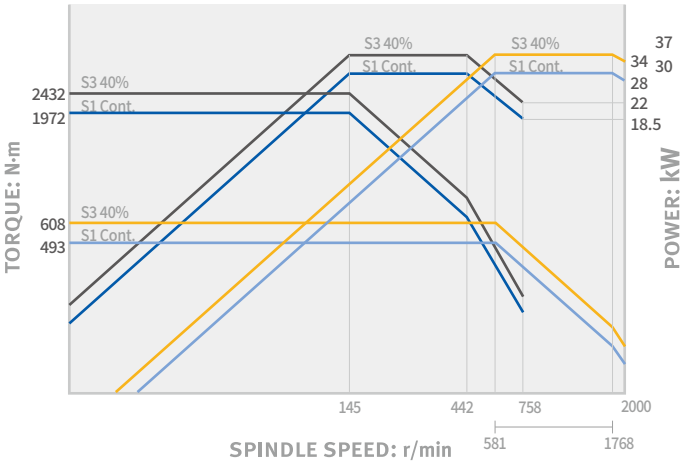
PUMA 5100MA / LMA / XLMA **FANUC**



PUMA 5100MB / LMB / XLMB **FANUC**



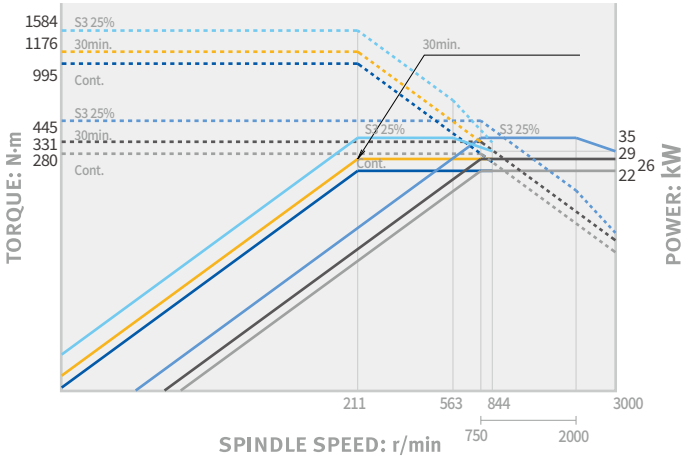
PUMA 5100LAY/XLYA **FANUC**



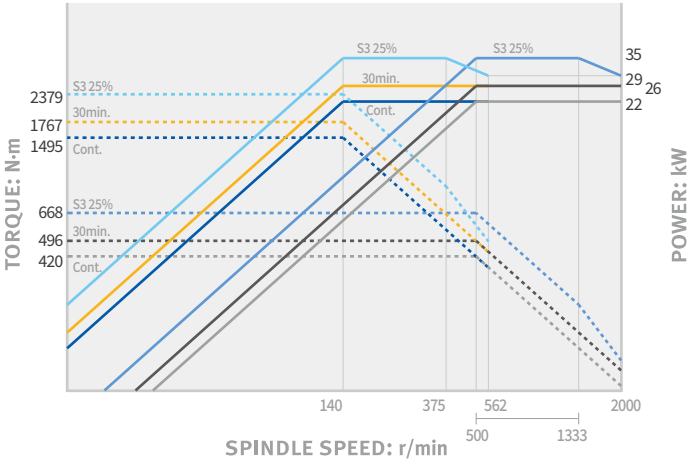
POWER | TORQUE

FANUC

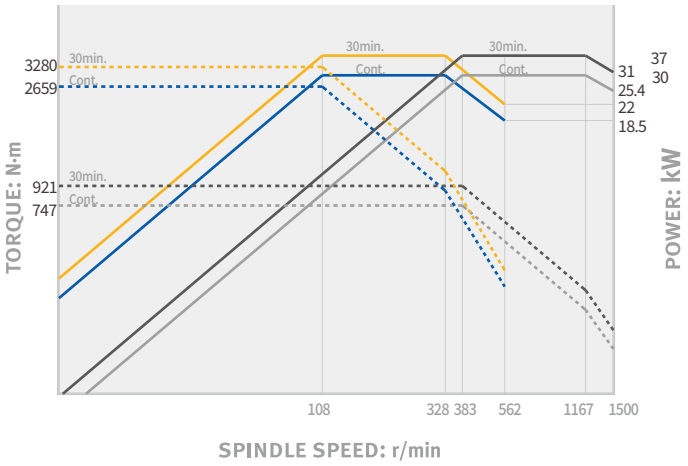
PUMA 4100A / LA / XLA



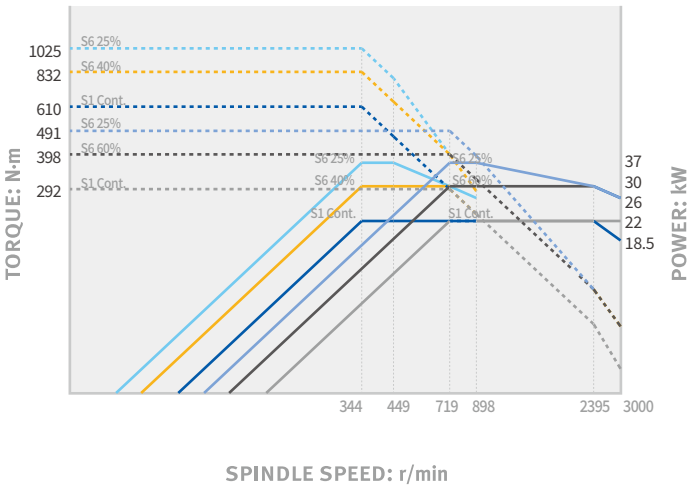
PUMA 4100B / LB / XLB



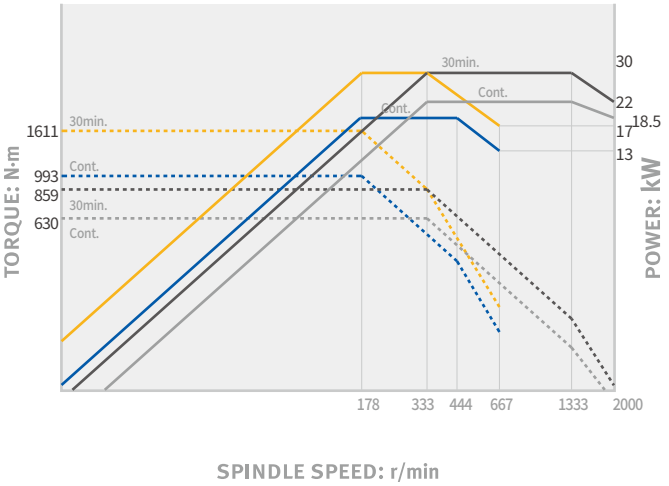
PUMA 4100C / LC / XLC



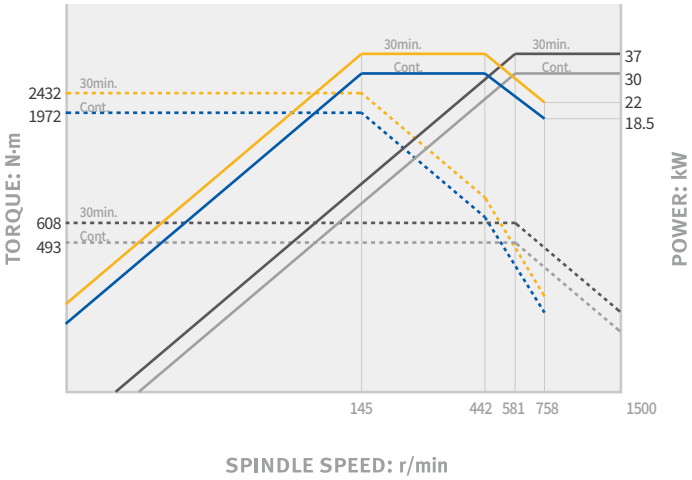
PUMA 4100MA / LMA / XLMA



PUMA 4100MB / LMB / XLMB



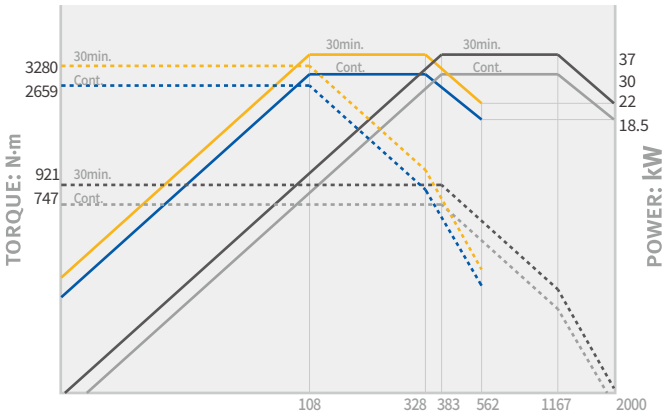
PUMA 4100MC / LMC / XLMC



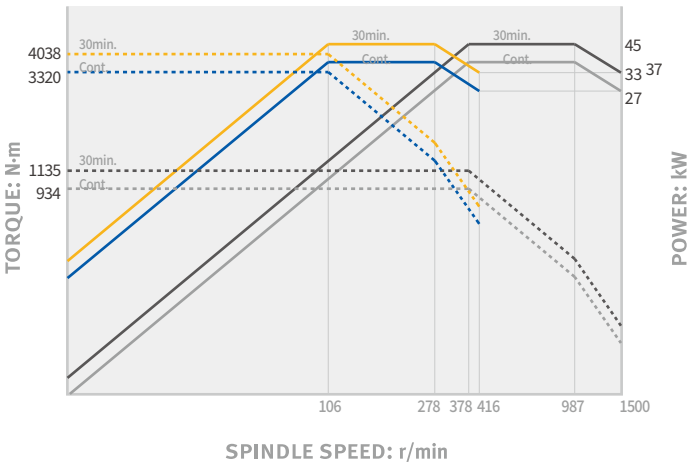
POWER | TORQUE

FANUC

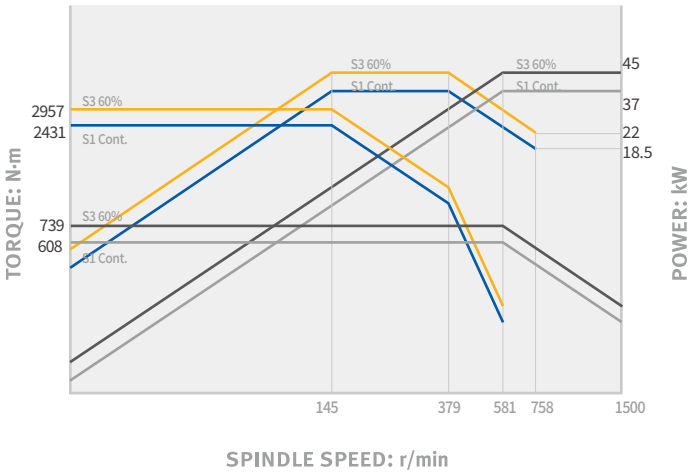
PUMA 5100A / LA / XLA



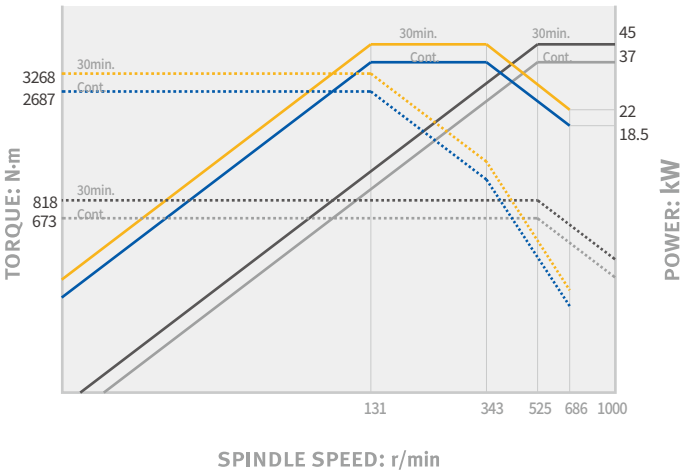
PUMA 5100B / LB / XLB



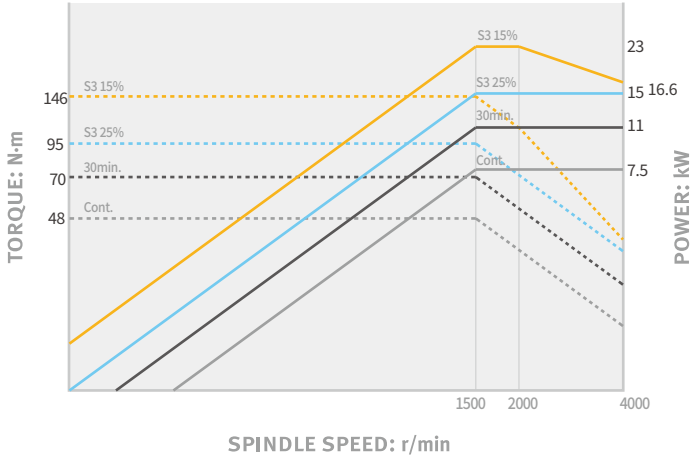
PUMA 5100LYB / XLYB



PUMA 5100LYC



회전공구

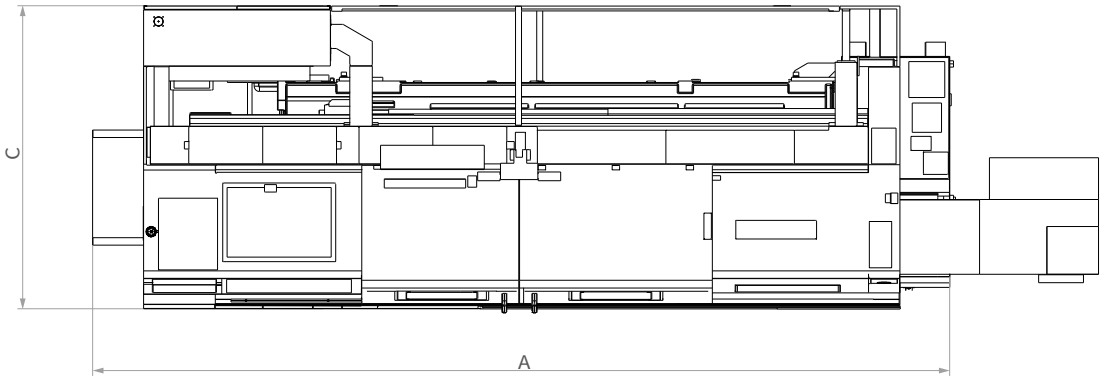


EXTERNAL DIMENSIONS

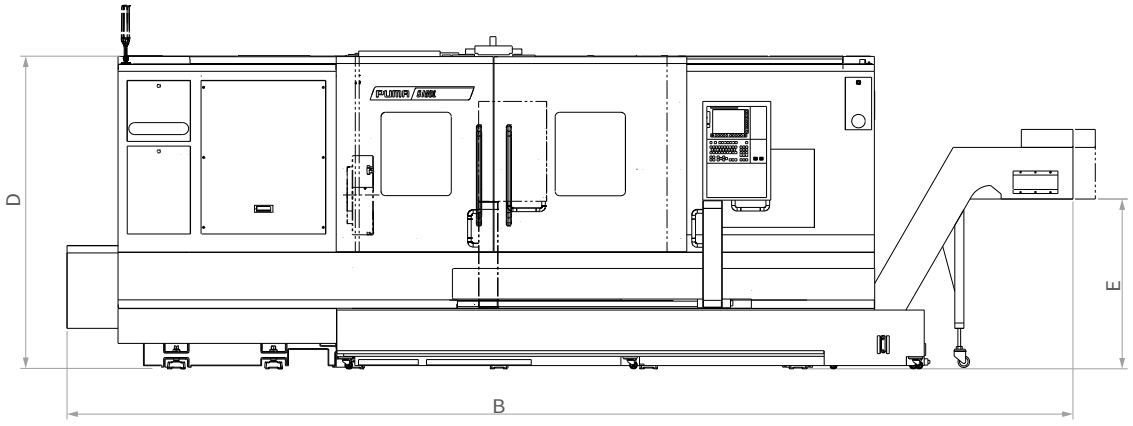
PUMA 4100 / 5100 series

Unit : mm (inch)

TOP



FRONT



** Some peripheral equipment can be placed in other places.*

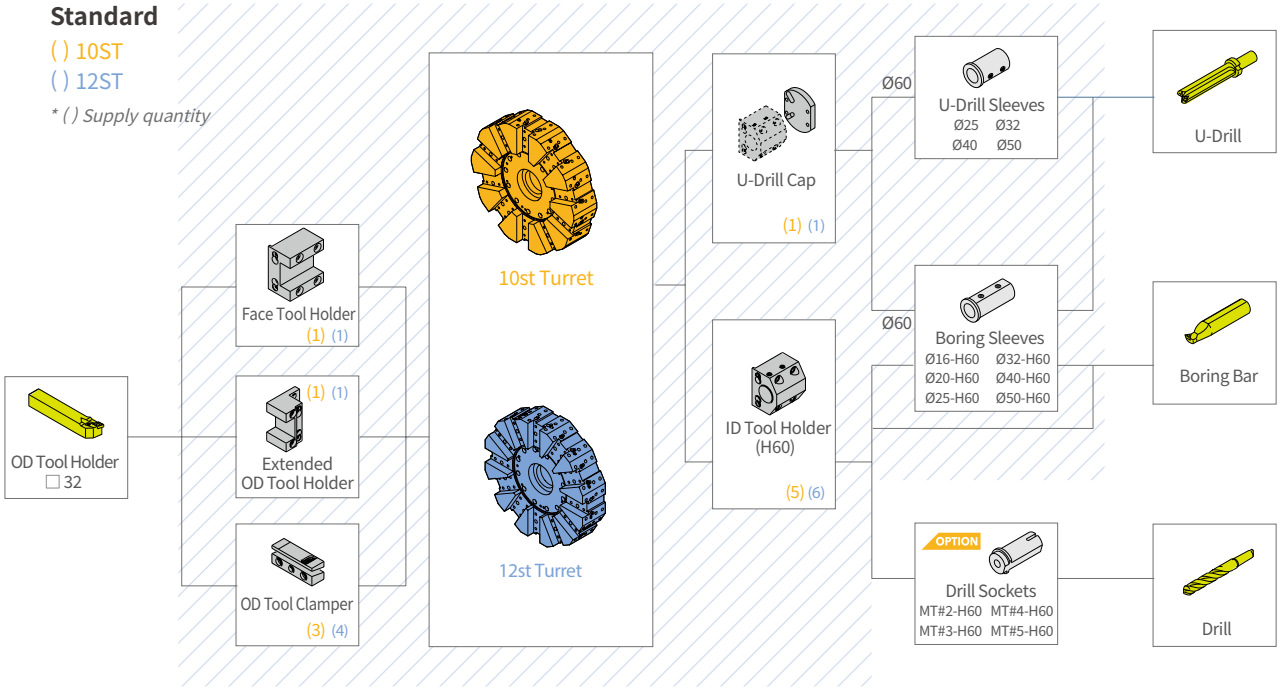
Model	A (Length)	B (Length with chip conveyor)	C (Width)	D (Height)	E (Height of ground to chip outlet)
PUMA 4100 / 5100	4654 / 4759 (183.2 / 187.4)	5549 (218.5)	2056 (80.9)	2194 (86.4)	1053 (41.5)
PUMA 4100L / 5100L	5774 / 5879 (227.3 / 231.5)	6669 (262.6)	2275 (89.6)	2272 (89.4)	1053 (41.5)
PUMA 4100XL / 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)

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

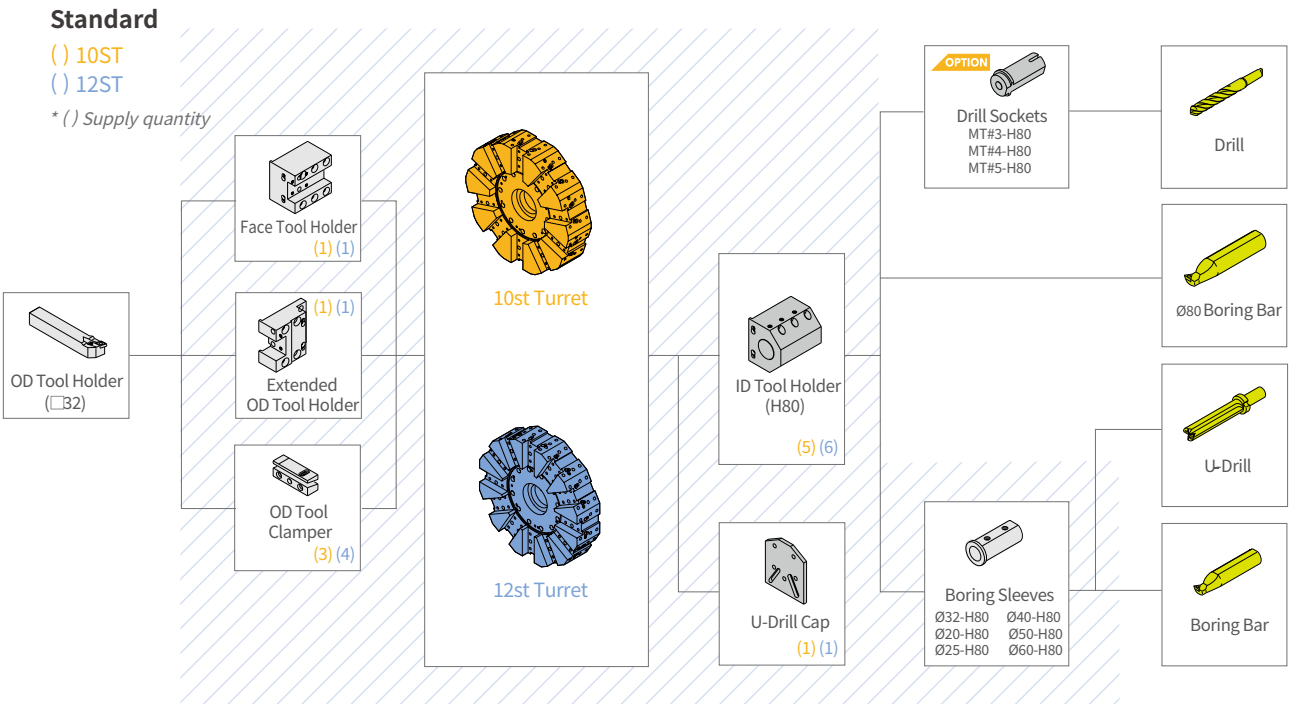
TOOLING SYSTEM

Unit : mm (inch)

PUMA 4100



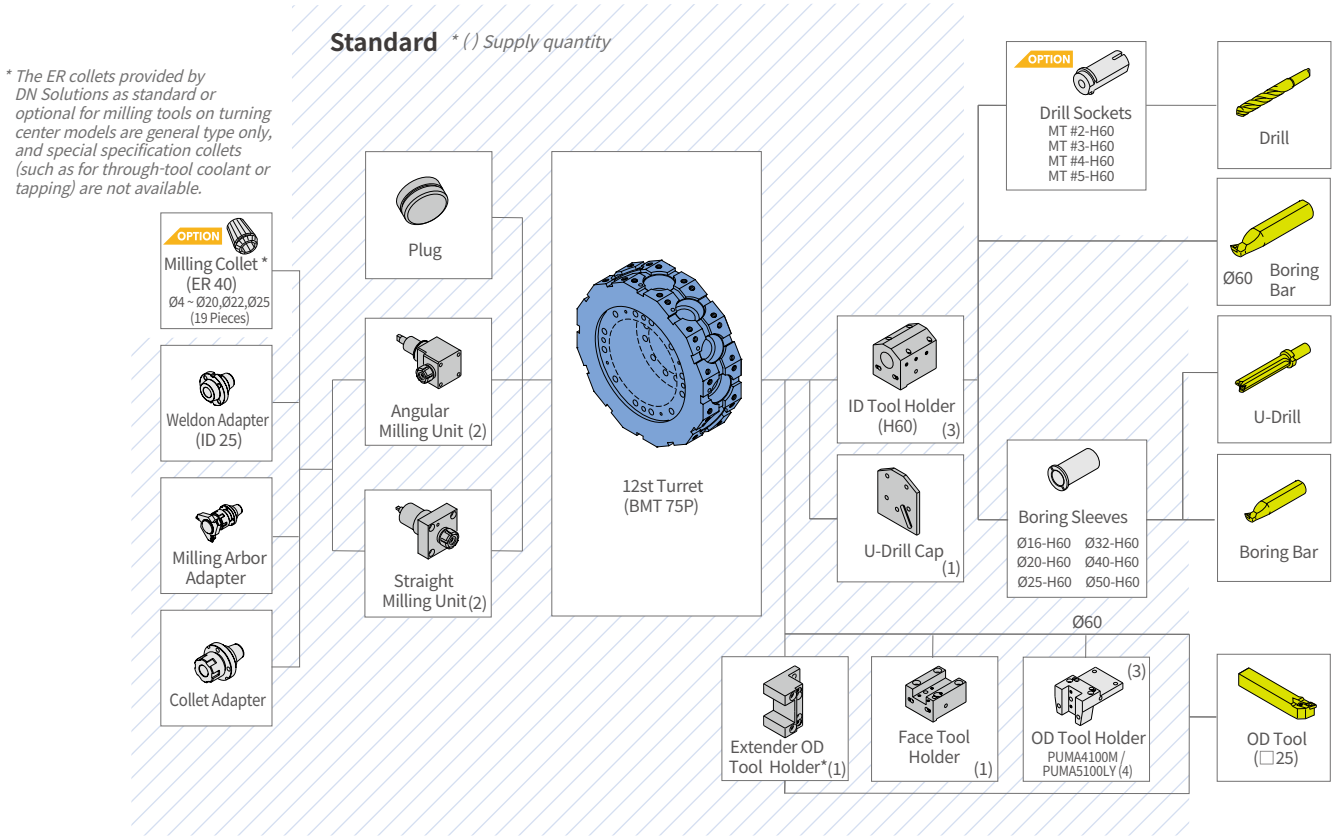
PUMA 5100



TOOLING SYSTEM | TOOL INTERFERENCE

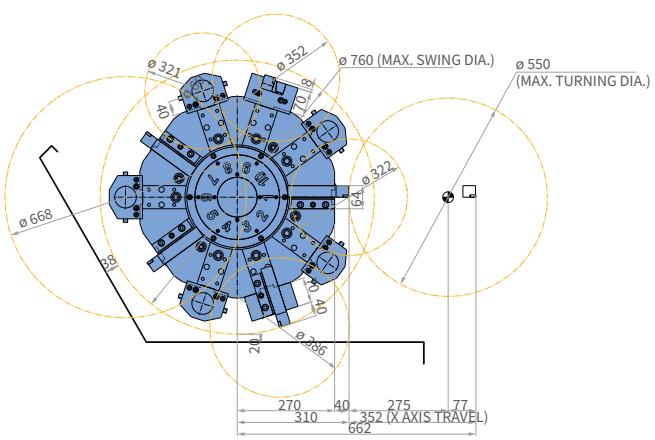
Unit : mm (inch)

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

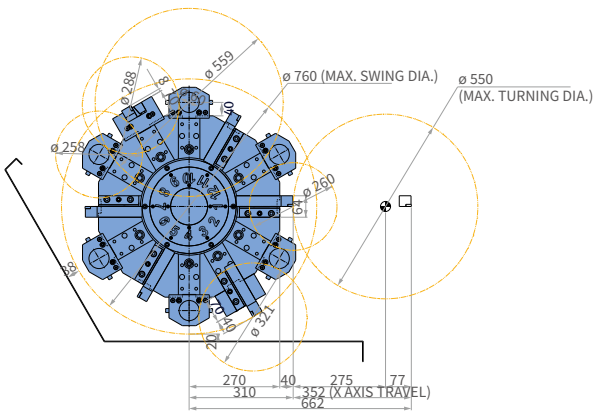


Tool interference

PUMA 4100 (10 station)



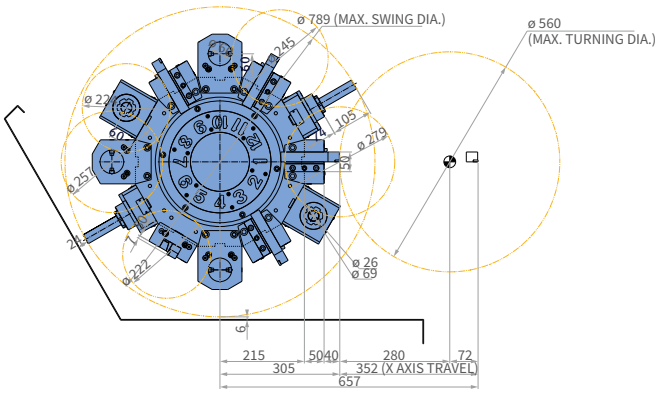
PUMA 4100 (12 station)



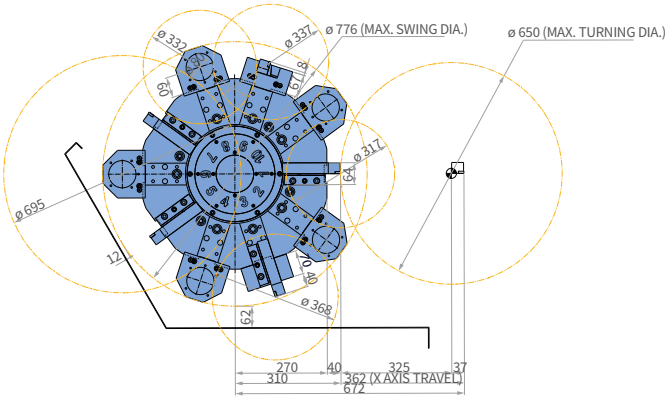
TOOL INTERFERENCE

Unit : mm (inch)

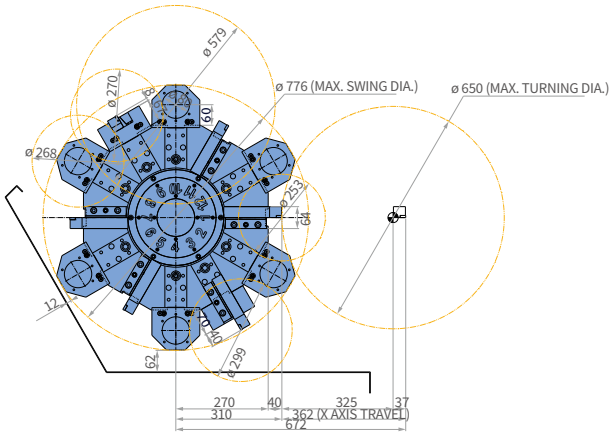
PUMA 4100M (12 station)



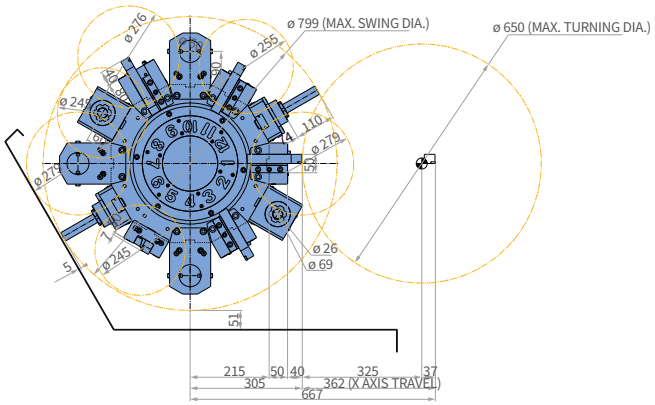
PUMA 5100 (10 station)



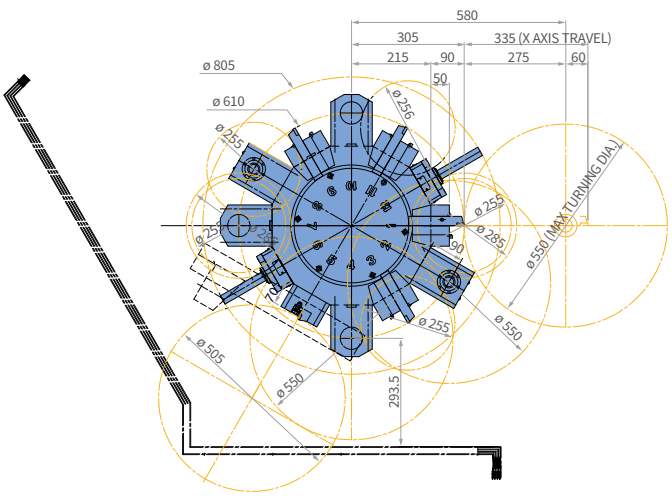
PUMA 5100 (12 station)



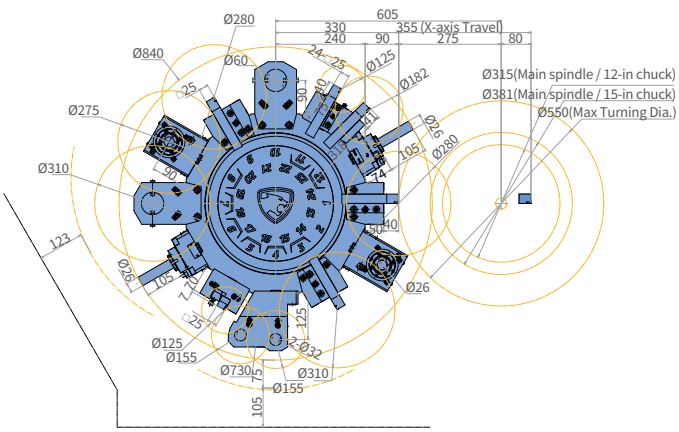
PUMA 5100M (12 station)



PUMA 5100LY / XLY (12 station)



PUMA 5100LY / XLY (24 station)

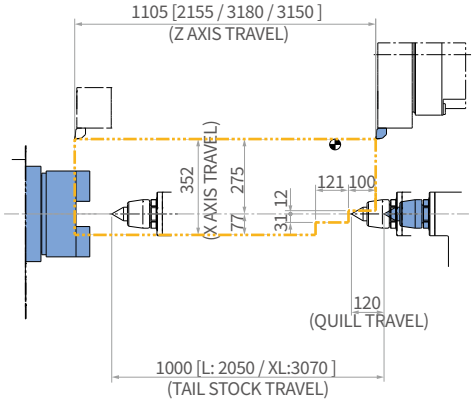


WORKING RANGE

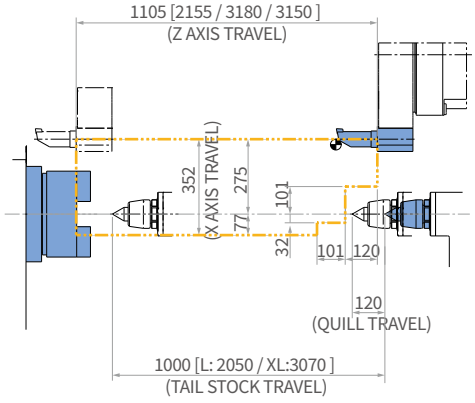
Unit : mm (inch)

PUMA 4100 [L / XLA & XLB / XLC]

OD Tool Holder

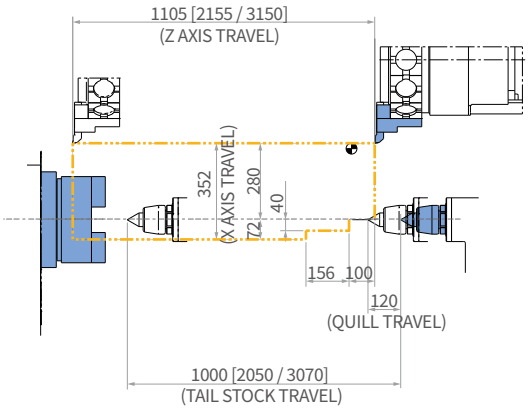


ID Tool holder

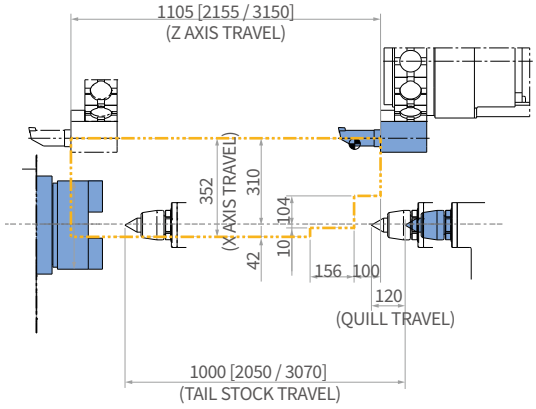


PUMA 4100M [LM / XLM]

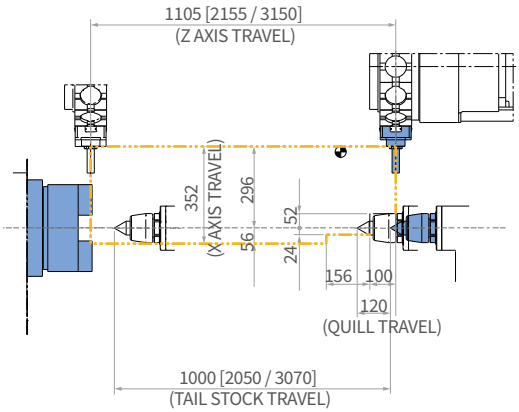
OD Tool Holder



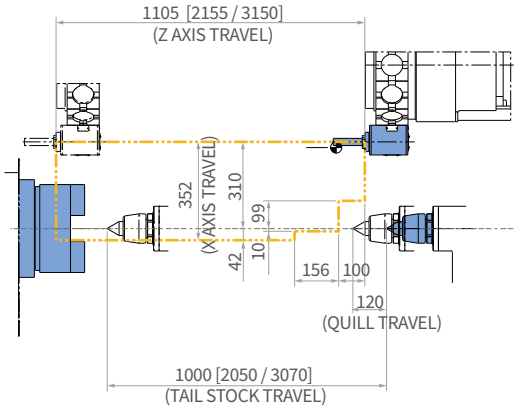
ID Tool Holder



Straight Milling Unit



Angular Milling Unit

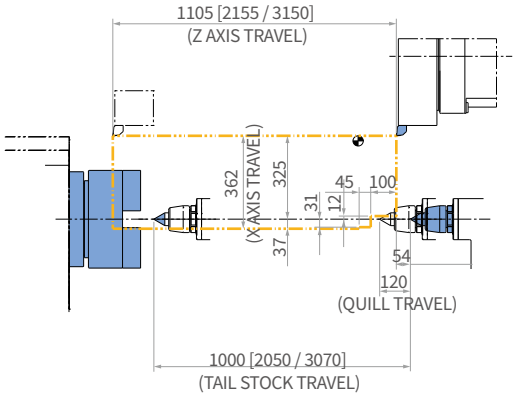


WORKING RANGE

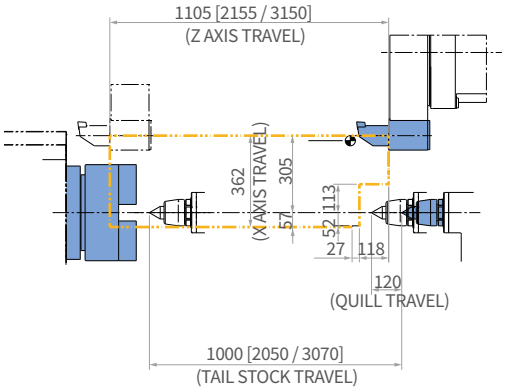
Unit : mm (inch)

PUMA 5100 [L / XL]

OD Tool Holder

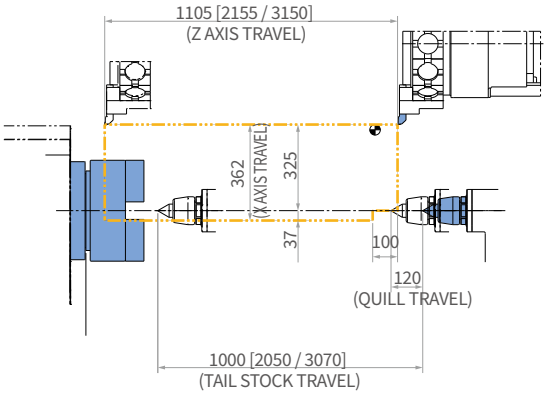


ID Tool holder

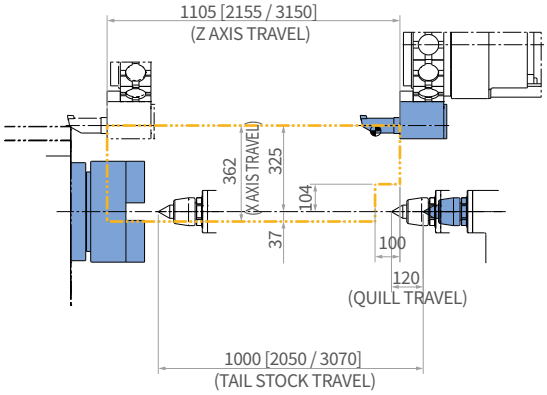


PUMA 5100M [LM / XLM]

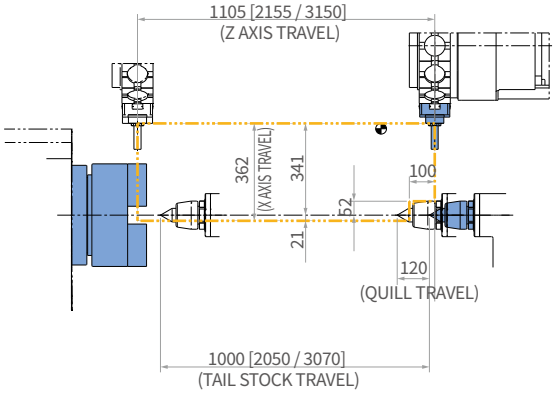
OD Tool Holder



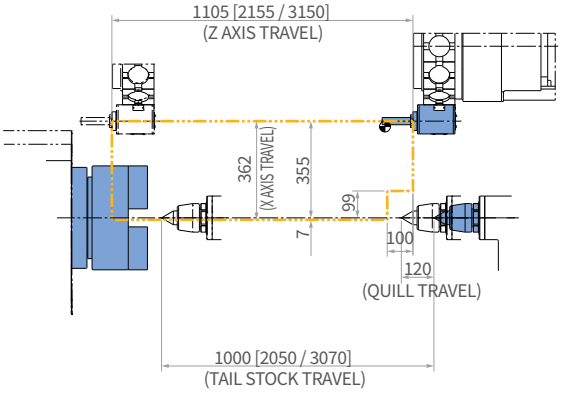
ID Tool Holder



Straight Milling Unit



Angular Milling Unit

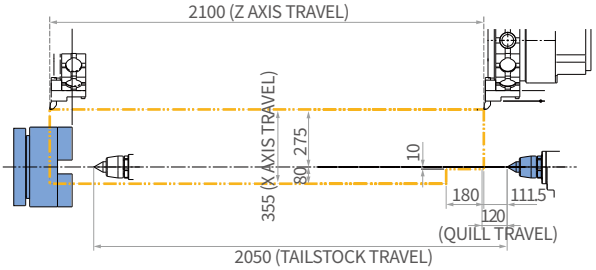


WORKING RANGE

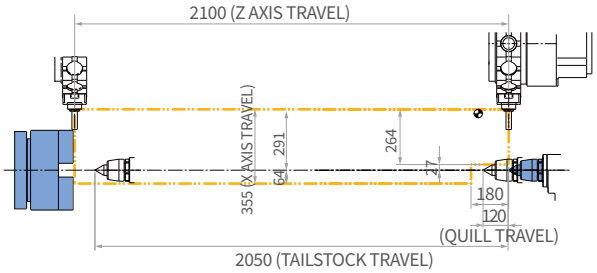
Unit : mm (inch)

PUMA 5100LY

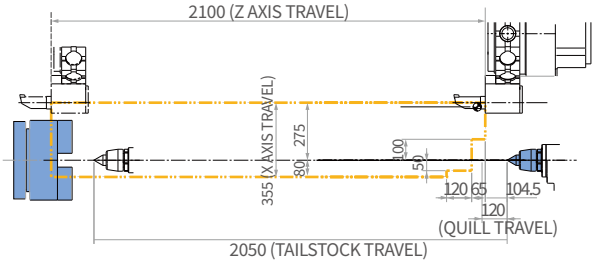
OD Tool Holder



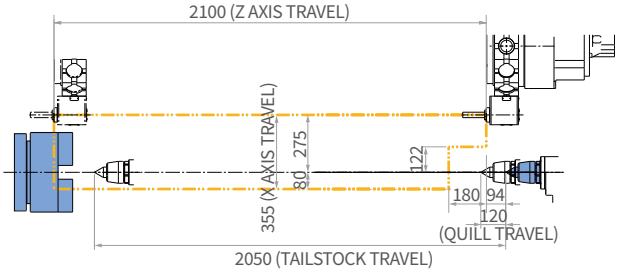
Straight Milling Unit



ID Tool Holder

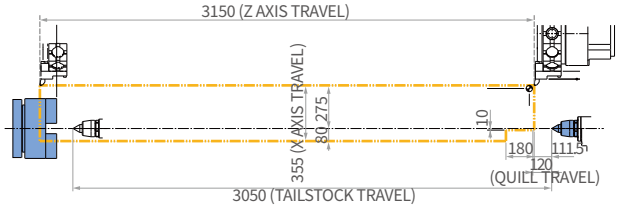


Angular Milling Unit

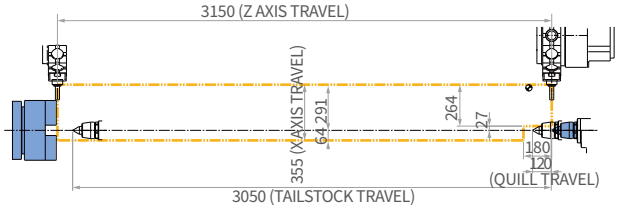


PUMA 5100XLY

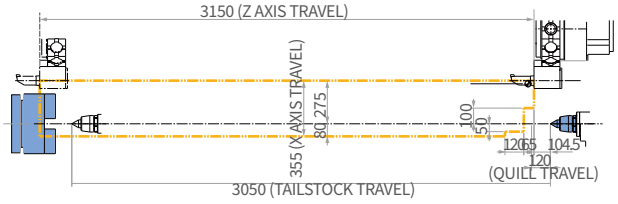
OD Tool Holder



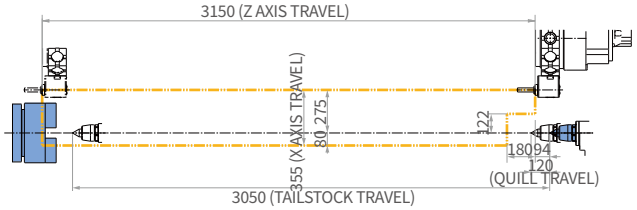
Straight Milling Unit



ID Tool Holder



Angular Milling Unit



MACHINE SPECIFICATIONS

PUMA 4100 series

Description			Unit	PUMA 4100A [LA / XLA]	PUMA 4100B [LB / XLB]	PUMA 4100C [LC / XLC]	PUMA 4100MA [LMA / XLMA]	PUMA 4100MB [LMB / XLMB]	PUMA 4100MC [LMC / XLMC]
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)	315 [315 / 380] (12.4 [12.4 / 15.0])	
	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])	978 [2028 / 3068] (38.5 [79.8 / 120.8])	938 [1988 / 3028] (36.9 [78.3 / 119.2])
	Chuck size		inch	12	15	21	12	15	21
	Chuck work weight (including chuck)		kg (lb)	500 (1102.3)	870 (1918.0)	1400 (3086.5)	500 (1102.3)	870 (1918.0)	1400 (3086.5)
	Shaft work weight (including chuck)		kg (lb)	1000 (2204.6)	1700 (3747.9)	2600 (5732.0)	1000 (2204.6)	1700 (3747.9)	2600 (5732.0)
	Bar working diameter		mm (inch)	102 (4.0)	116.5 (4.6)	165.5 (6.5)	102 (4.0)	116.5 (4.6)	165.5 (6.5)
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] (43.5 [84.8 / 124.0])			
		Y-axis	mm (inch)	-					
		C-axis	deg	-			360		
	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	-			50		
Main spindle	Max. spindle speed		r/min	3000	2000	1500	3000	2000	1500
	Main spindle motor power (30min/Cont.)		kW (Hp)	35/26/22 (46.9/34.9/29.5) (S3 25% / S3 60% / S1 Cont.)	35/26/22 (46.9/34.9/29.5) (S3 25% / S3 60% / S1 Cont.)	37/30 (49.6/40.2) (S3 60% / S1 Cont.)"	37/30/22 (49.6/40.2/29.5) (S6 25% / S6 60% / S1 Cont.)"	30/22 (40.2/29.5) (S6 60% / S1 Cont.)	-
	Max. spindle torque		N·m (ft-lb)	1584 (1169.0)	2379 (1755.7)	3280 (2420.6)	1025 (756.4)	1611 (1188.9)	-
	Spindle nose		ASA	A2-11		A1-15	A2-11	A2-11	A1-15
	Spindle bearing dia.(Front)		mm (inch)	160 (6.3)	180 (7.1)	240 (9.4)	160 (6.3)	180 (7.1)	240 (9.4)
	Max. Spindle through hole diameter		mm (inch)	115 (4.5)	132 (5.2)	181 (7.1)	115 (4.5)	132 (5.2)	181 (7.1)
	Min. spindle indexing angle (C-axis)		deg	-			0.001		
Turret	No. of tool stations		ea	12 {10}*	10 {12}*		12 {24}, BMT75P		
	OD tool size		mm (inch)	32 x 32 (1.3 x 1.3)			Main 25*25(1.0*1.0) Sub 32*32 (1.3*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	-			4000 {8000}		
	Rotary tool motor power (S3 15%/S3 25%/30min/Cont.)		kW (Hp)	-			23 / 15 / 11 / 7.5 (S3 15% / S3 25% / S6 15% / S1 Cont.)		
	Max. rotary tool torque		N·m (ft-lb)	-			146 (107.7)		
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 [43.18 / 44.98]	42.25 [43.18 / 44.98]	51.05 [51.98 /53.78]	43.19 [45.06 / 44.98]	43.19 [45.06 / 44.98]	51.99 [53.86 / -]
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])	10100 [11550 / 12550] (22266 [25463 / 27668])	10600 [12050 / 13050] (23369 [26565 / 28770])
Control	NC system		-	DN Solutions Fanuc i Plus, Fanuc 32i (SIEMENS 828D / 840D)**					

*{} : Option ** : Please contact DN Solutions 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.

MACHINE SPECIFICATIONS

PUMA 5100 series

Description			Unit	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
Capacity	Swing over bed		mm (inch)	900 [900 / 870] (35.4 [35.4 / 34.3])					880 (34.6)		
	Swing over saddle		mm (inch)	690 (27.2)					817 (32.2)		
	Recom. turning diameter		mm (inch)	380 (15.0)					380 (15.0)		
	Max. turning diameter		mm (inch)	650 (25.6)					550 (21.7)		
	Max. turning length		mm (inch)	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)]	
	Chuck size		inch	15	21	No chuck(order base)	15	21	15	21	No chuck(order base)
	Chuck work weight (including chuck)		kg (lb)	870 (1918.0)	1400 (3086.5)	2000 (4409.2)	870 (1918.0)	1400 (3086.5)	870 (1918.0)	1400 (3086.5)	2000 (4409.2)
	Shaft work weight (including chuck)		kg (lb)	1700 (3747.9)	2600 (5732.0)	3600 (7936.6)	1700 (3747.9)	2600 (5732.0)	1700 (3747.9)	2600 (5732.0)	3600 (7936.6)
	Bar working diameter		mm (inch)	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
Travels	Travel distance	X-axis	mm (inch)	362 (14.3)					355 (14.0)		
		Z-axis	mm (inch)	1105 [2155 / 3150] (43.5 [84.8 / 124.0])					2100 (82.7) [3150 (124.0)]		
		Y-axis	mm (inch)	-					150 (5.9)		
		C-axis	deg	-			360		360		
	Rapid traverse rate	X-axis	m/min (ipm)	16 (629.9)					20 (787.4)		
		Z-axis	m/min (ipm)	20 (787.4)					18 (708.7) [20 (787.4)]		
		Y-axis	m/min (ipm)	-					10 (393.7)		
		C-axis	r/min	-					50 [100]		
Main spindle	Max. spindle speed		r/min	2000	1500	1000	2000	1500	2000	1500	1000
	Main spindle motor power (30min/Cont.)		kW (Hp)	37/30 (49.6/40.2) (S3 60% / S1 Cont.)	45/37 (60.3/49.6) (S3 60% / S1 Cont.)	45/37 (60.3/49.6) (S3 60% / S1 Cont.)	37/30 (49.6/40.2) (S3 60% / S1 Cont.)	45/37 (60.3/49.6) (S3 60% / S1 Cont.)	37/30 (49.6/40.2) (S3 60% / S1 Cont.)	45/37 (60.3/49.6) (S3 60% / S1 Cont.)	45/37 (60.3/49.6) (S3 60% / S1 Cont.)
	Max. spindle torque		N·m (ft-lb)	3280 (2420.6)	4038 (2980.0)	4463 (3293.7)	2432 (1794.8)	2957 (2182.3)	2431 (1794.1)	2957 (2182.3)	3268 (2411.8)
	Spindle nose		ASA	A2-11	A1-15	ISO 702-4 NO.20	A2-11	A1-15	A2-11	A1-15	ISO 702-4 NO.20
	Spindle bearing dia.(Front)		mm (inch)	180 (7.1)	240 (9.4)	340 (13.4)	180 (7.1)	240 (9.4)	180 (7.1)	240 (9.4)	340 (13.4)
	Max. Spindle through hole diameter		mm (inch)	132 (5.2)	181 (7.1)	275 (10.8)	132 (5.2)	181 (7.1)	132 (5.2)	181 (7.1)	275 (10.8)
	Min. spindle indexing angle(C-axis)		deg	-			0.001		0.001		
Turret	No. of tool stations		ea	10 {12}*			12 {24}, BMT75P		12 {24}, BMT75P		
	OD tool size		mm (inch)	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})*		
	Max. boring bar size		mm (inch)	80 (3.1)			60 (2.4)		60 (2.4)		
	Turret indexing time (1 station swivel)		s	0.25					0.25		
	Max. rotary tool speed		r/min	-			4000{8000}		4000{8000}		
	Rotary tool motor power (S3 15%/S3 25%/30min/ Cont.)		kW (Hp)	-			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)		
	Max. rotary tool torque		N·m (ft-lb)	-			146 (107.7)		146 (107.7)		
Tailstock	Tailstock travel		mm(inch)	1000 [2050 / 3070] (39.4 [80.7 / 120.9])					2050 (80.7)		
	Quill diameter		mm(inch)	120(4.7)					120(4.7)		
	Quill travel		mm(inch)	120(4.7)					120(4.7)		
	Quill bore taper		MT	MT#6 Live {MT#5 Built-in Dead}*					MT#6 Live {MT#5 Built-in Dead}*		
Power Source	Electric power supply (rated capacity)		kVA	52.55 [52.55 / 53.78]	60.25 [60.25 / 59.36]	60.25 [60.25 / 59.36]	53.86 [53.86 / 53.78]	61.56 [61.56 / 59.36]	61.09	68.79	68.79
Machine Dimensions	Length		mm(inch)	4759 [5879 / 7059] (187.4 [231.5 / 277.9])					5980 (235.4) [7302 (287.5)]		
	Width		mm(inch)	2056 [2275 / 2276] (80.9 [89.6 / 89.6])					2522 (99.3) [2632 (103.6)]		
	Height		mm(inch)	2194 [2272 / 2335] (86.4 [89.4 / 91.9])					2885 (113.6) [2937 (115.6)]		
	Weight		kg(lb)	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)]		
Control	NC system		-	DN Solutions Fanuc i Plus, Fanuc 32i (SIEMENS 828D / 840D)**							

*{} : Option ** : Please contact DN Solutions 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.

WHY DN SOLUTIONS

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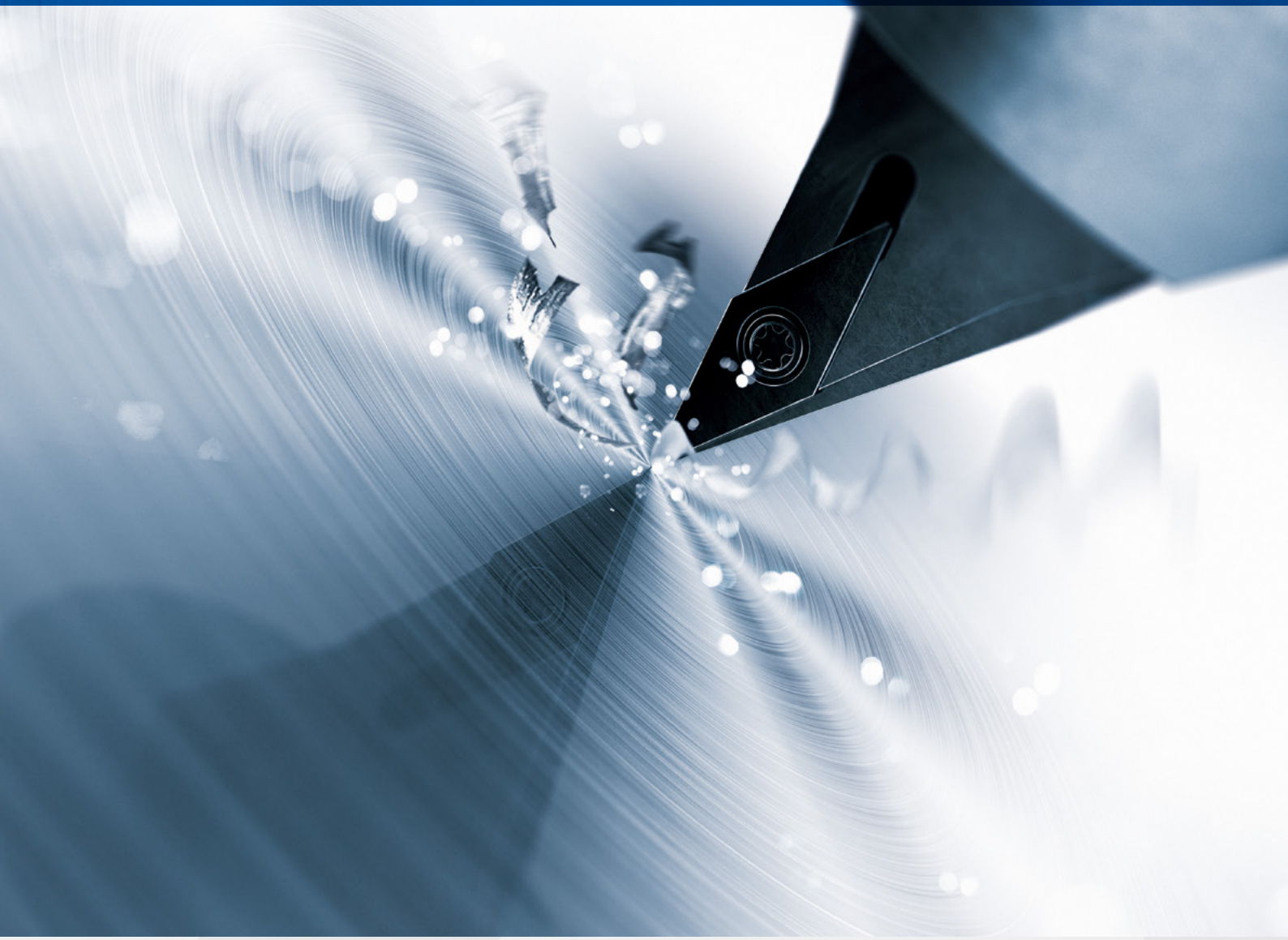

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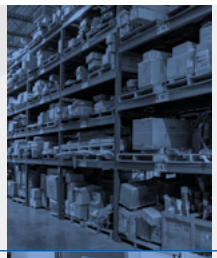

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** Specifications and information contained within this catalogue may be changed without prior notice.*

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