DN SOLUTIONS

HIGH PRODUCTIVITY, 6/8/10/12 INCH CLASS,
2-SPINDLE HORIZONTAL TURNING CENTER

PUMA TW 2100·2600

PUMA TW 2100/2600/M/W/WM
PUMA TW 2100-GL/2600-GL/M-GL/W-GL/WM-GL
PUMA TW 2600B/MB/WB/WMB
PUMA TW 2600B-GL/MB-GL/WB-GL/WMB-GL

PUMA TW 2100·2600

The 6 / 8 / 10 / 12 inch PUMA TW series turning center is a next-generation, twin-spindle automated machine tool providing users with excellent productivity and accuracy, and even higher levels of satisfaction.
The PUMA TW has parallel twin spindles and a twin live tool turret construction, which makes it ideal for machining automotive-type jobs like ring gears or clutch boss applications.

CONTENTS

SUPERIOR PRODUCTIVITY

Equipped with Feed System Optimization Technology, the PUMA TW Series delivers high productivity and features high-performance feed motors, and impressive rapid rates and acceleration/deceleration.

SUPERIOR MACHINING PERFORMANCE

PUMA TW series' machining performance is based on high power and high torque. The BMT turret (available on 'M' models) deliver superior milling performance.

IMPROVED USER CONVENIENCE

EZ work, hot keys and other features control machine and peripheral device operations. Work counting, gantry operation and parts control functions further improve user convenience, especially, in mass production.

BASIC STRUCTURE

The guide way type of PUMA TW can be selected from Box and LM type. Box guide way is for customers who need heavy cutting. LM guide way is for customers who need light/fast/high accuraccy machining.

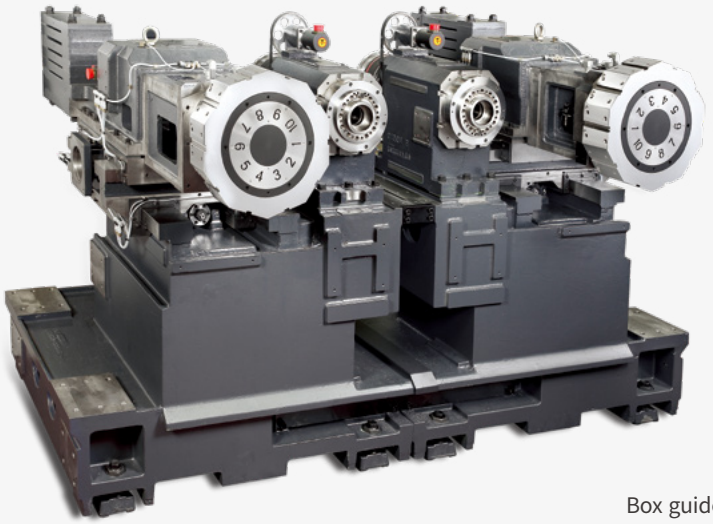
Chuck size

PUMA TW 2100 SERIES
5, 6, 8 inch

PUMA TW 2600 SERIES
8, 10, 12 inch

Guide way

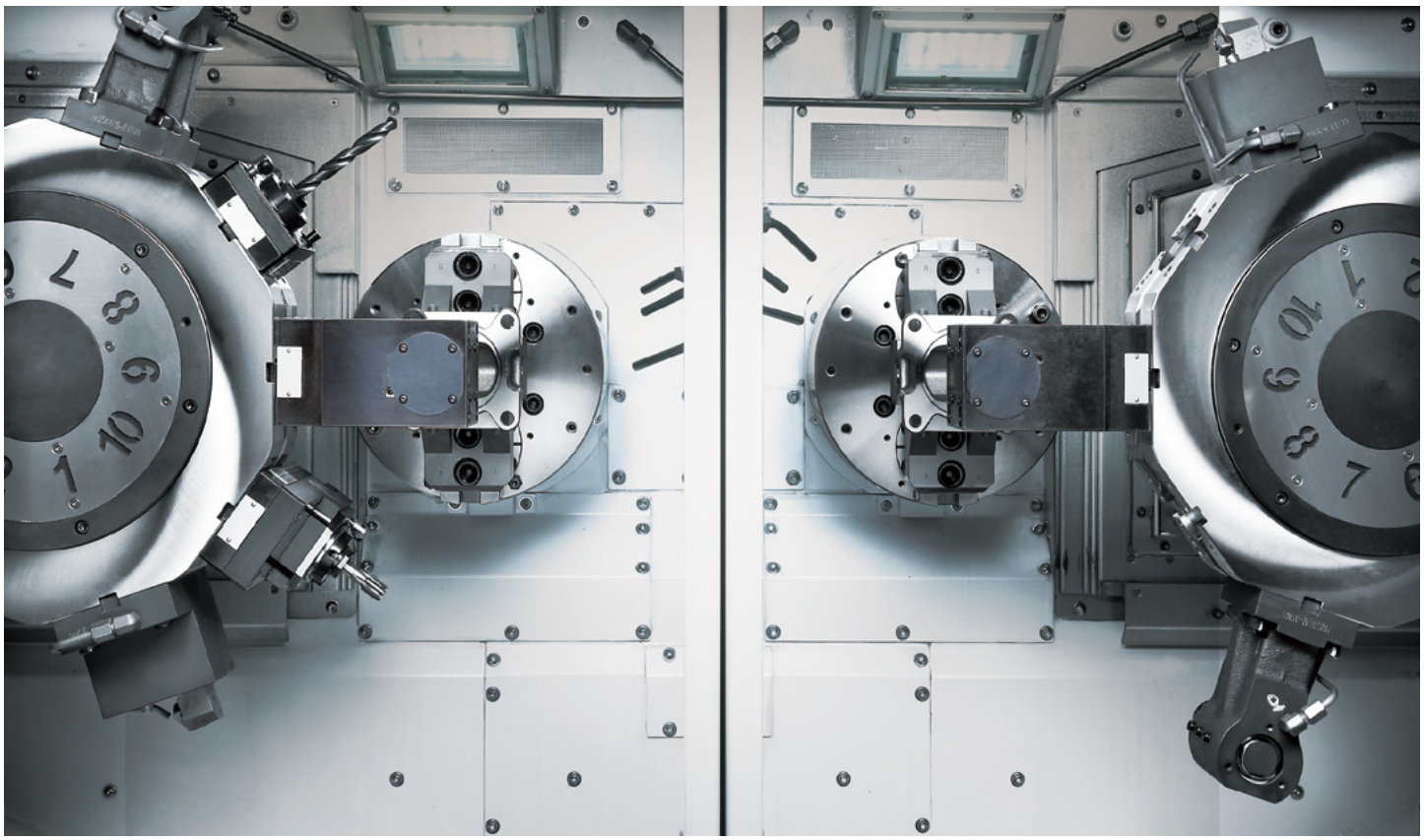
BOX Guide way
LM Guide way OPTION



Box guide way

Chuck size	Machine	Travel distance (mm (inch))		Rapid traverse rate (m/min (ipm))		Guide way	
		X axis	Z axis	X axis	Z axis	BOX	LM
5, 6, 8 inch	PUMA TW 2100/M	135 (5.3)	160 (6.3)	24 (944.9)	24 (944.9)	●	○
	PUMA TW 2100GL/M-GL						
8, 10, 12 inch	PUMA TW 2600/M	190 (7.5)	180 (7.1)	24 (944.9)	24 (944.9)		
12 inch	PUMA TW 2600B/MB						

● *Standard* ○ *Optional*



SPINDLE INFORMATION

The high-power/torque motor supports high-precision and heavy-duty machining - improving productivity.

Max. spindle speed

PUMA TW 2100 SERIES
4500[1] {6000[2] OPTION} r/min
1) For 8"Chuck size 2) For 5,6"Chuck size

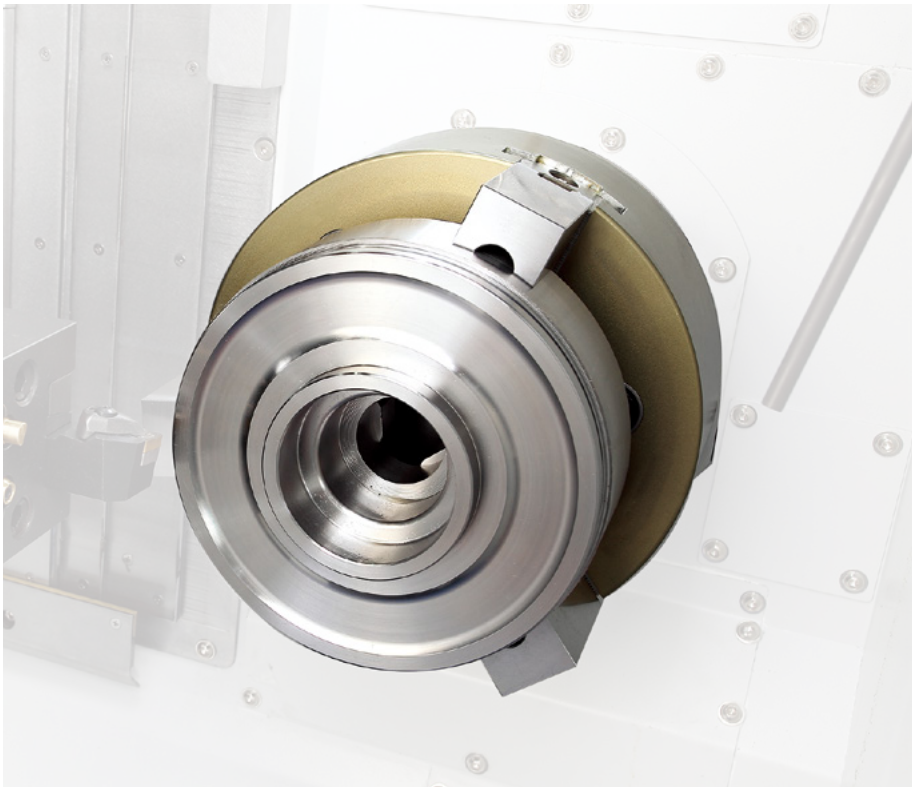
PUMA TW 2600 SERIES
3500 r/min

Max. spindle motor torque

PUMA TW 2600 SERIES
202 {404 OPTION} N·m
(149.1 {298.2} ft-lbs)

PUMA TW 2100 SERIES
127 N·m (93.7 ft-lbs)
{60 BUILT-IN OPTION}

PUMA TW 2600B SERIES
622 N·m (459.0 ft-lbs)



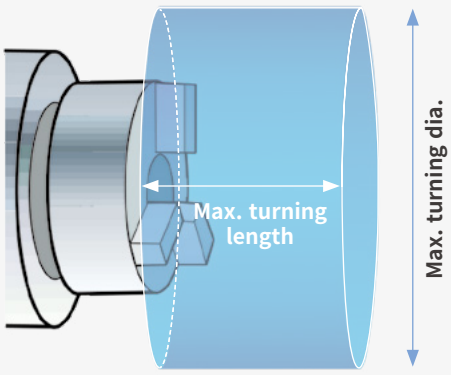
MACHINING AREA

The Series offers the largest machining area of its class, up to Ø360mm (Ø14.2 inch) maximum turning diameter, and 170mm (6.7 inch) maximum turning length.

Max. machining area

Max. turning diameter
Ø360 mm (Ø14.2 inch)

Max. turning length
170 mm (6.7 inch)



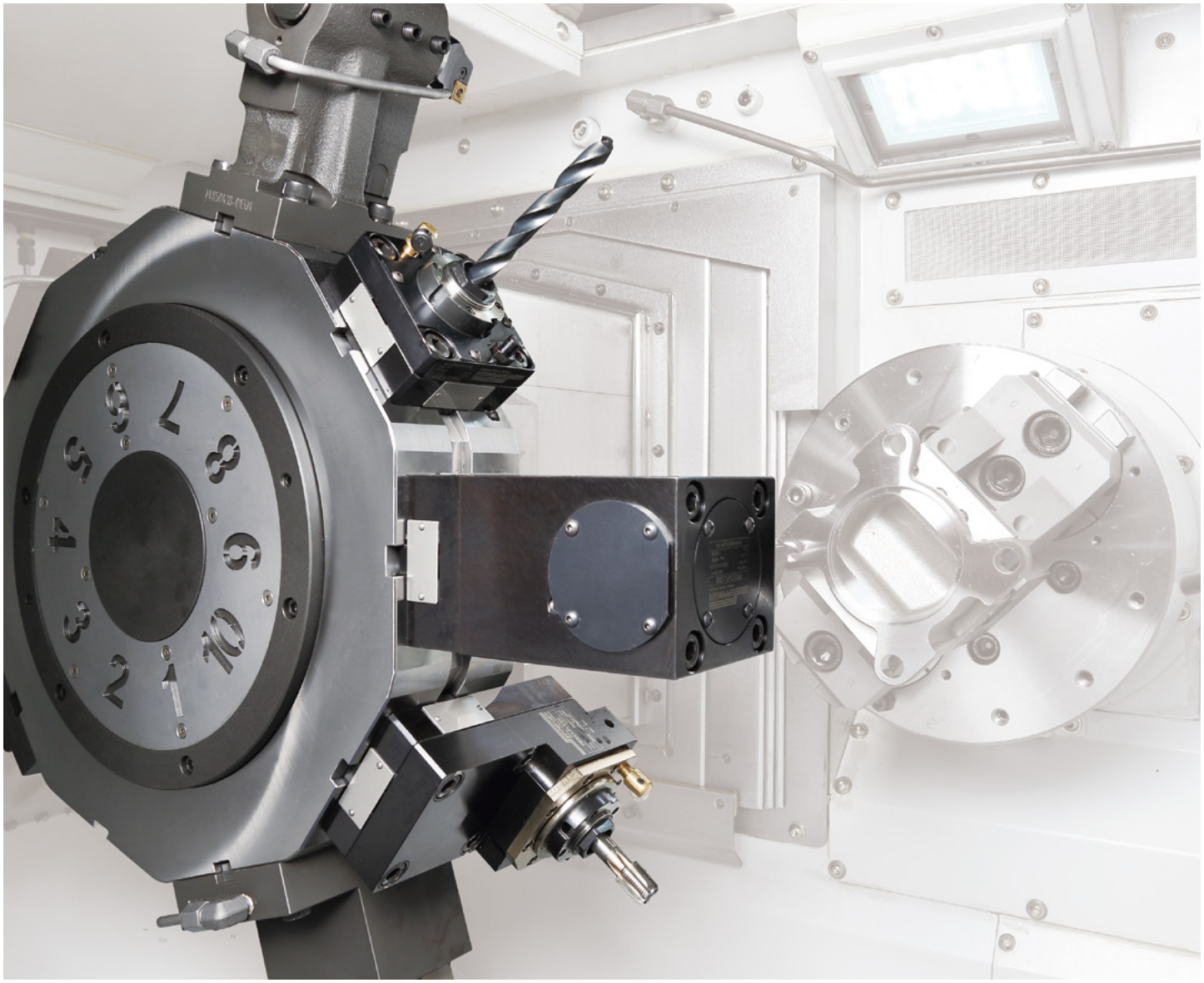
Description		Unit	PUMA TW 2100/M	PUMA TW 2600/M	PUMA TW 2600B/MB
Max. turning diameter		mm (inch)	Ø240 (Ø9.4)	Ø360 (Ø14.2)	Ø360 (Ø14.2)
Max. turning length		mm (inch)	128 (5.0)	170 (6.7)	170 (6.7)
Chuck size	Optional 1	mm (inch)	Ø210 (8")	Ø255 (10")	Ø304 (12")
	Optional 2		160(6"), 135(5")	Ø210 (8"), Ø305 (12")	X

TURRET

Turret rotation is controlled by a servo motor that ensures the rapid and accurate selection of tools. M model machines are equipped with DN Solutions's unique BMT turret that provides superior milling performance.

Rotary tool structure - highly resistant to thermal error

The milling turret, including the rotary tools, features the BMT design for higher rigidity. In addition, the reduction of thermal displacement due to oil and air lubrication of the rotary tools, ensures the best milling, drilling and tapping performance in its class.



- **REDUCE NON-CUTTING TIME BY 10%**
- **HIGHER INDEXING SPEEDS**
- **IMPROVED ACCURACY**

2-axis Turret_PUMA TW series

No. of tool posts (PUMA TW 2100)
8+8 ea {10+10 OPTION}

No. of tool posts (PUMA TW 2600)
10+10 ea {12+12 OPTION}

3-axis Turret_PUMA TW series

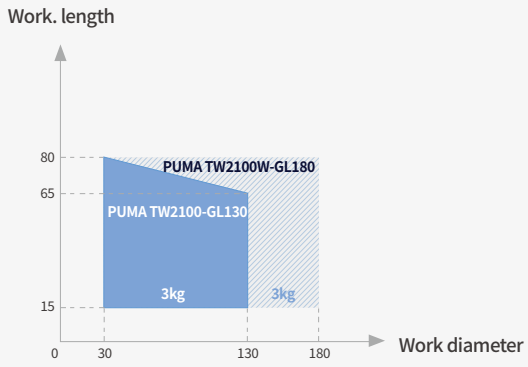
No. of tool posts (PUMA TW 2100M)
10+10 ea, **BMT45P**
{BMT55P OPTION}

No. of tool posts (PUMA TW 2600M)
10+10 ea, **BMT55P**
{BMT65P OPTION}

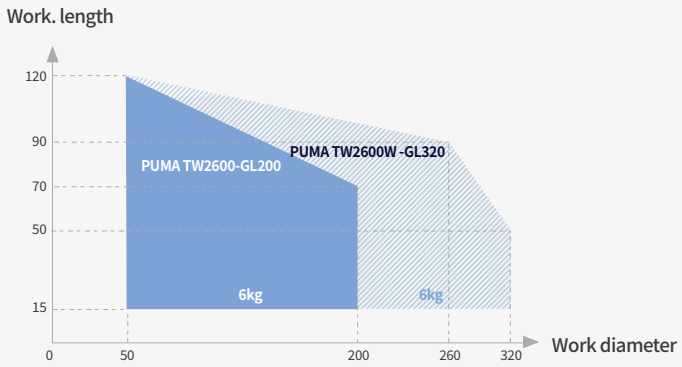
HIGH-SPEED GANTRY LOADER

The 3-axis, servo-driven, high-speed gantry loader reduces work loading/unloading times and maximizes productivity.

PUMA TW 2100-GL



PUMA TW 2600-GL



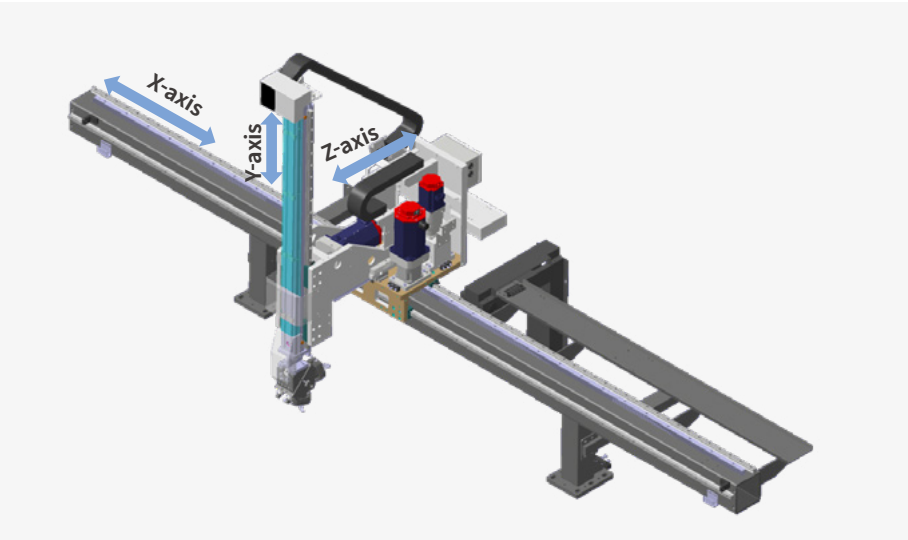
Max. handling diameter	PUMA TW 2100-GL130	PUMA TW2100W-GL180	PUMA TW 2600-GL200	PUMA TW2600W-GL320
Ø130 x 65mm 3.0kg/ea	●			
Ø180 x 80mm 3.0kg/ea		●		
Ø200 x 70mm 6.0kg/ea			●	
Ø210 x 50mm 6.0kg/ea				●

Gantry loader handling time
(Enter → Change Work → Exit)

PUMA TW 2100-GL
5.7 S

PUMA TW 2600-GL
7.9 S

** without Top door operating time*



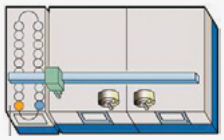
Description		Unit	PUMA TW 2100/M-GL	PUMA TW 2600/M-GL
Rapid traverse	X axis	m/min (ipm)	210 (8267.7)	150 (5905.5)
	Y axis	m/min (ipm)	180 (7086.6)	130 (5118.1)
	Z axis	m/min (ipm)	55 (2165.4)	50 (1968.5)
Travel distance (GL TYPE A1 / A2 / A3)	X axis	mm (inch)	1910 / 1910 / 3220 (75.2 / 75.2 / 126.8)	2260 / 2260 / 4120 (89.0 / 89.0 / 162.2)
	Y axis	mm (inch)	560 (22.0)(GL130), 610 (24.0) (GL180)	710 (28.0)
	Z axis	mm (inch)	200 (7.9)	270 (10.6)

HIGH-SPEED GANTRY LOADER

Gantry and stocker types

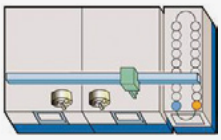
● Loading position
● Unloading position

A-1 type



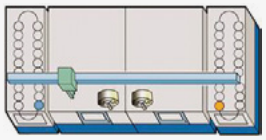
Work in/out and stocker are at the left side of the gantry

A-2 type



Work in/out and stocker are at the right side of the gantry

A-3 type



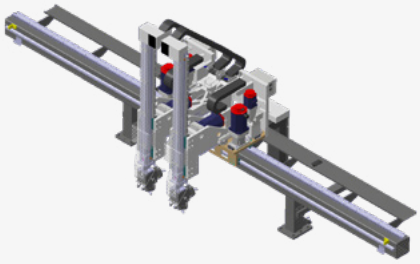
Work in/out position is independent, and stockers are at both the left and right sides of the gantry

** Contact your sales representative for more details regarding gantry and stocker configurations.*

Various gantry loader OPTION

Twin gantry loader

The twin gantry loader uses a double loader to reduce processing times.



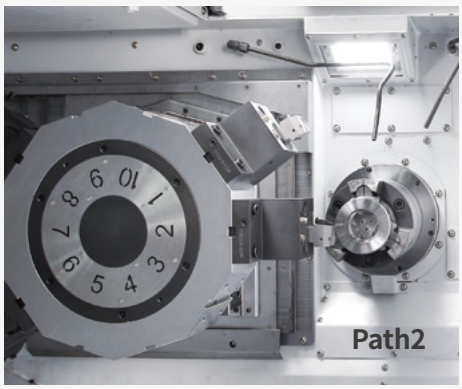
Extended gantry loader

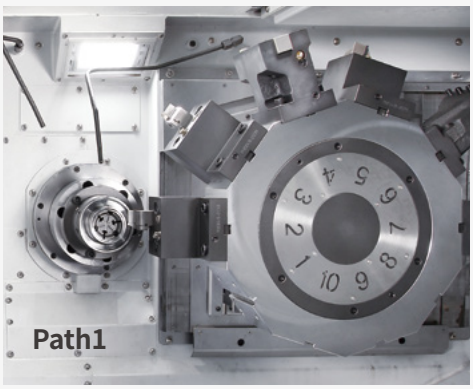
Provides extended X,Y and Z axis strokes.
(Contact your sales representative for details).

Separate type OPTION

Completely separate and ultra-productive, the left and right bed and gantry loader can be used in conjunction with each other - rough machining being undertaken on one side and finish machining on the other.
(Contact your sales representative for details).

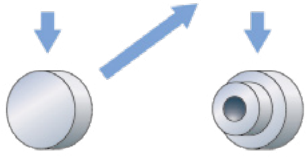
Applications





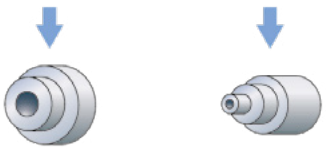
Work concept : example 1

Simultaneous machining of the same parts on the left and right sides



Work concept : example 2

Simultaneous machining of two sequential processes of the same part



Work concept : example 3

Simultaneous machining of different parts (in case of Non-GL, Twin -GL)

PUMA TW AUTOMATION SOLUTION

Improve customer's convenience by providing a variety of standard/modular peripheral equipment.

Peripheral equipment

Standardization of variety option
Modular system with 26 types of stocker / measurement

Price competitiveness
Reduce costs by up to 15% than previously

Short delivery lead time
Estimated 80% faster delivery time and quicker maintenance

Quality and stability
Quality assurance through standardization

Improving operator convenience
Provide PLC control and motion control

Stocker

Measurement

① Gantry type	② Stocker system define								③ Measuring system define			
A1	S	TR	14	-	200				M	O	B	200
A3	S	PU	30	-	100	-	2R		M	D	T	200

① Gantry type
- A1
- A2
- A3

②-1 Stocker type
- RotaryTrack
- RotaryRound
- ConveyorPitch
- Pusher type
- ConveyorPlate

②-2 Station
- 6/7/8/10/12/14/30/50 station or pitch

②-3 Size
- Max 100
- Max 125
- Max 200

②-4 Row
- 2Row
- 3Row

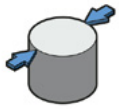
③-1 Measuring type
- Inner diameter
- Outer diameter
- Difference gap

③-2 Type
- Button
- Touch

③-3 Size
- Max 200

PUMA TW AUTOMATION SOLUTION

Modular peripheral equipment

		Stoker (5 Type)												Measurement (3 Type)					
		Drum				Rotary			Pitch conveyor		Push		Conveyor		Inner dia.		Outer dia.		Difference gap	
Image																				
Description		· Convenient space to stack workpieces · Can handle different load capacities				· Minimal installation space required · Superior accuracy of loading / unloading operations			· Shaft types and asymmetric square shapes can be loaded		· No separate feeder required		· Can be used to transfer between each process		· Data back-up function enables part dimension status and history to be checked · Automatic offset function ensures machining accuracy · Stability and cost-effectiveness provided through modularization					
Station	Station	8	10	12	14	6	8	10	14 Pitch 2row (Max100)	14 Pitch 3row (Max100)	30 Stock 2row (Max100)	50 Stock 3row (Max100)	7 Stock		Button	Touch	Button	Touch	Button	Touch
	Work size (Outer dia.) mm (inch)	50~200 (2.0~7.9)							50~100 (2.0~3.9)				50~125 (2.0~4.9)	125~200 (4.9~7.9)	50~200 (2.0~7.9)					
TW Type	A1	○	○	○	○	○	○	○												
	A2	○	○	○	○	○	○	○												
	A3	○	○	○	○	○	○	○	○	○	○	○	○	○	○					
Out stocker		All									Only out stocker		All							

Matrix

Item				Stoker						
Type				Drum				Rotary		
Station				8	10	12	14	6	8	10
Work size (outer dia.)			mm	50~200 (2.0~7.9)						
- (No measurement)				A1-STR08-50(~200) A2-STR08-50(~200)	A1-STR10-50(~200) A2-STR10-50(~200)	A1-STR12-50(~200) A2-STR12-50(~200)	A1-STR14-50(~200) A2-STR14-50(~200)	A1-SRO06-50(~200) A2-SRO06-50(~200)	A1-SRO08-50(~200) A2-SRO08-50(~200)	A1-SRO10-50(~200) A2-SRO10-50(~200)
Measurement	Inner diament	Button	50~200 (2.0~7.9)	A3-STR08-50(~200)-MIB50(~200)	A3-STR10-50(~200)-MIB50(~200)	A3-STR12-50(~200)-MIB50(~200)	A3-STR14-50(~200)-MIB50(~200)	A3-SRO06-50(~200)-MIB50(~200)	A3-SRO08-50(~200)-MIB50(~200)	A3-SRO10-50(~200)-MIB50(~200)
		Touch		A3-STR08-50(~200)-MIT50(~200)	A3-STR10-50(~200)-MIT50(~200)	A3-STR12-50(~200)-MIT50(~200)	A3-STR14-50(~200)-MIT50(~20	A3-SRO06-50(~200)-MIT50(~200)	A3-SRO08-50(~200)-MIT50(~200)	A3-SRO10-50(~200)-MIT50(~200)
	Outer diament	Button		A3-STR08-50(~200)-MOB50(~200)	A3-STR10-50(~200)-MOB50(~200)	A3-STR12-50(~200)-MOB50(~200)	A3-STR14-50(~200)-MOB50(~200)	A3-SRO06-50(~200)-MOB50(~200)	A3-SRO08-50(~200)-MOB50(~200)	A3-SRO10-50(~200)-MOB50(~200)
		Touch		A3-STR08-50(~200)-MOT50(~200)	A3-STR10-50(~200)-MOT50(~200)	A3-STR12-50(~200)-MOT50(~200)	A3-STR14-50(~200)-MOT50(~200)	A3-SRO06-50(~200)-MOT50(~200)	A3-SRO08-50(~200)-MOT50(~200)	A3-SRO10-50(~200)-MOT50(~200)
	Difference gap	Button		A3-STR08-50(~200)-MDB50(~200)	A3-STR10-50(~200)-MDB50(~200)	A3-STR12-50(~200)-MDB50(~200)	A3-STR14-50(~200)-MDB50(~200)	A3-SRO06-50(~200)-MDB50(~200)	A3-SRO08-50(~200)-MDB50(~200)	A3-SRO10-50(~200)-MDB50(~200)
		Touch		A3-STR08-50(~200)-MDT50(~200)	A3-STR10-50(~200)-MDT50(~200)	A3-STR12-50(~200)-MDT50(~200)	A3-STR14-50(~200)-MDT50(~200)	A3-SRO06-50(~200)-MDT50(~200)	A3-SRO08-50(~200)-MDT50(~200)	A3-SRO10-50(~200)-MDT50(~200)

Item				Stoker					
Measurement	Type			Pitch Conveyor		Push		Conveyor	
	Station			14		30 stock	50 stock	7 stock	
				2 row	3 row	2 row	3 row		
	Work size(outer dia.)		mm	50~100 (2.0~3.9)				50~125 (2.0~4.9)	125~200 (4.9~7.9)
	Inner diament	Button	50~200	A3-SPI14-2R-50(~100)-MIB50(~200)	A3-SPI14-3R-50(~100)-MIB50(~200)	A3-SPU30-2R-50(~100)-MIB50(~200)	A3-SPU50-2R-50(~100)-MIB50(~200)	A3-SPL07-50(~125)-MIB50(~200)	A3-SPL07-125(~200)-MIB50(~200)
		Touch		A3-SPI14-2R-50(~100)-MIT50(~200)	A3-SPI14-3R-50(~100)-MIT50(~200)	A3-SPU30-2R-50(~100)-MIT50(~200)	A3-SPU50-2R-50(~100)-MIT50(~200)	A3-SPL07-50(~125)-MIT50(~200)	A3-SPL07-125(~200)-MIT50(~200)
	Outer diament	Button		A3-SPI14-2R-50(~100)-MOB50(~200)	A3-SPI14-3R-50(~100)-MOB50(~200)	A3-SPU30-2R-50(~100)-MOB50(~200)	A3-SPU50-2R-50(~100)-MOB50(~200)	A3-SPL07-50(~125)-MOB50(~200)	A3-SPL07-125(~200)-MOB50(~200)
		Touch		A3-SPI14-2R-50(~100)-MOB50(~200)	A3-SPI14-3R-50(~100)-MOT50(~200)	A3-SPU30-2R-50(~100)-MOT50(~200)	A3-SPU50-2R-50(~100)-MOT50(~200)	A3-SPL07-50(~125)-MOT50(~200)	A3-SPL07-125(~200)-MOT50(~200)
	Difference gap	Button		A3-SPI14-2R-50(~100)-MDB50(~200)	A3-SPI14-3R-50(~100)-MDB50(~200)	A3-SPU30-2R-50(~100)-MDB50(~200)	A3-SPU50-2R-50(~100)-MDB50(~200)	A3-SPL07-50(~125)-MDB50(~200)	A3-SPL07-125(~200)-MDB50(~200)
		Touch		A3-SPI14-2R-50(~100)-MDT50(~200)	A3-SPI14-3R-50(~100)-MDT50(~200)	A3-SPU30-2R-50(~100)-MDT50(~200)	A3-SPU50-2R-50(~100)-MDT50(~200)	A3-SPL07-50(~125)-MDT50(~200)	A3-SPL07-125(~200)-MDT50(~200)

** Please contact DN Solutions Machine Tools sales to discuss more detail consultation regarding material shape.*

STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

Description	Features	PUMA TW2100 /M/W/WM	PUMA TW2100 /M/W/WM-GL	PUMA TW2600 /M/W/WM	PUMA TW2600B/M	PUMA TW2600/M/W/WM · TW2600B/GL/MB/MB-GL
Guide way	BOX	●	●	●	●	●
	LMG	○	○	○	○	○
Chuck	5 inch(BUILT-IN)	○	○	X	X	X
	6 inch(BUILT-IN)	○	○	X	X	X
	6 inch(BELT)	○	○	X	X	X
	8 inch(BELT)	○	○	○	X	○
	10 inch(BELT)	X	X	○	X	○
	12 inch(BELT)	X	X	○	○	○
	Chuck excluded	●	●	●	●	●
Turret	2 axis_8 station	●	●	X	X	X
	2 axis_10 station	○	○	●	●	●
	2 axis_12 station	X	X	○	○	○
	3 axis(M)_10 station, BMT45P	●	●	X	X	X
	3 axis(M)_10 station, BMT55P	○	○	●	●	●
	3 axis(M)_10 station, BMT65P	X	X	○	○	○
Coolant pump	1.5 bar	●	●	●	●	●
	4.5 bar	○	○	○	○	○
	7 bar	○	○	○	○	○
Coolant system options	Oil skimmer (Belt-type)	○	○	○	○	○
	Flushing coolant	○	○	○	○	○
	Through-spindle coolant	○	○	○	○	○
	Coolant pressure switch	○	○	○	○	○
	Coolant Chiller | for water-soluble coolant**	○	○	○	○	○
Chucking option	Chuck clamp confirmation	○	○	○	○	○
Rear chip conveyor	Hinged belt type	○	○	○	○	○
	Magnetic scrapper type (for castings)	○	○	○	○	○
	Screw type	○	○	○	○	○
Chip bucket	Folklift 300L	○	○	○	○	○
	Rotation 300L	○	○	○	○	○
Chip disposal options	Air blower	○	●	○	○	●
	Chuck coolant	○	●	○	○	●
	Air gun	○	○	○	○	○
	Coolant gun	○	○	○	○	○
	Mist collector_ready	○	○	○	○	○
	Mist collector soluble	○	○	○	○	○
Measurement & automation	Tool setter (Removable)	○	○	○	○	○
	Work position confirmation device_ready	○	○	○	○	○
	Work position confirmation device_TACO	○	○	○	○	○
	Auto door	○	Top Door Standard	○	○	Top Door Standard
	Work & tool counter	○	○	○	○	○
Gantry loader	A1 Type loader	-	●	-	-	●
	A2 Type loader	-	○	-	-	○
	A3 Type loader	-	○	-	-	○
	Stocker (A1/A2/A3)	-	○	-	-	○
	Turn over Unit	-	●	-	-	●
	Gripper	-	○	-	-	○
	Gripper head type (CAM type swicel)	-	○	-	-	○
	Work inspection chute	-	○	-	-	○
Optional accessories	Tool setter (Removable)	○	○	○	○ 1)	○ 1)
	Air conditioner	○	○	○	○	○
	Signal tower	○	●	○	○	●
	Electric cabinet lamp	○	○	○	○	○
	Auto power cut-off	○	○	○	○	○
	Quick change tooling(CAPTO)	○	○	○	○	○
Customized special option	High torque motor	○	○	○	○	○
	Chip conveyor side-way type (Left & Right)	○	○	○	○	○
	Screw type chip conveyor	○	○	○	○	○
	Through spindle Air	○	○	○	○	○
	High pressure coolant(10Bar, 20Bar, 70Bar)	○	○	○	○	○
	Stand-alone gantry loader	X	○	X	X	○
	Gantry loader twin carriage	X	○	X	X	○
	Gantry loader cam type swivel	X	○	X	X	○
	Coolant level switch : Sensing level - Low / High	○	○	○	○	○

⁎Please contact your DN Solutions representative for detailed machine information.

● *Standard* ○ *Optional* X *N/A*

** When using a semi-synthetic type or synthetic type, contact our sales representative or service center in advance.*

*** Coolant chiller unit is designed for machining conditions using water soluble coolant. In case of machining conditions using non-watersoluble coolant, its high viscosity can result in poor chilling effects or device damage, so prior technical consultation is absolutely necessary.*

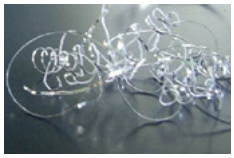
1) Tool setter option is only applicable to PUMA TW2600WB/M, PUMA TW2600WB/M-GL instead of PUMA TW2600B/M, PUMA TW2600B/M-GL.

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

PERIPHERAL EQUIPMENT

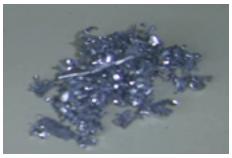
Chip conveyor OPTION

Hinged belt type : Most common type of chip conveyor. Appropriate for steel materials generating chips over 30mm.
Magnetic scraper type : Chip conveyor with a magnet. Appropriate for machining cast iron and the generation of fine chips.
Drum filter type : Drum filter type chip conveyor. Appropriate for aluminum work for filtering small chips.


Long


Short

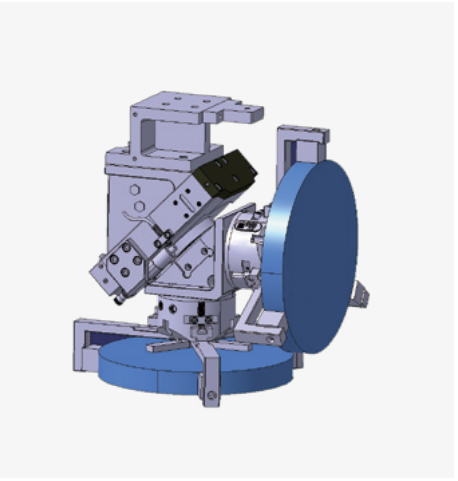

Needle


Sludge

Chip conveyor type \ Material		Carbon steel			Cast iron		Aluminium		
		Long	Short	Needle	Short	Sludge	Long	Short	Needle
Hinged belt type		○	△	×	△	×	○	△	×
Scrapper type	Normal	×	○	△	○	△	×	△	×
	Magnetic	×	○	○	○	○	-	-	-
Drum filter type	Hinged type	○	△	×	△	×	○	△	×
	Scrapper	×	○	△	○	△	×	○	△

○ Suitable, △ Possible, X Not suitable

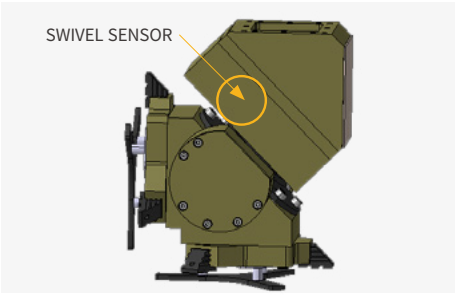
Unique solution for non-conventional turning applications OPTION



** Delivery terms will be advised on request.*

CAM TYPE (SWIVEL) OPTION

Stable rotation reduces time and improves productivity by making material loading / unloading more efficient.

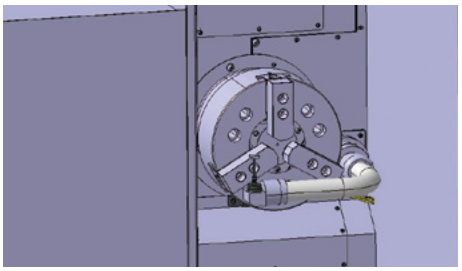


Quick change CAPTO OPTION

The Quick Change Tool system simplifies the tool change operation. The system is recommended for users who need to change tools frequently, or who are looking to significantly reduce set-up times.

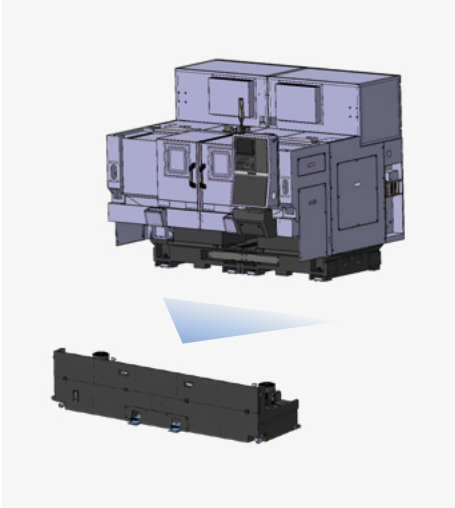
Tool setter OPTION

The tool setter ensures fast and precise tool length and diameter measurement, and the detection of broken tools.



Coolant tank

The coolant tank can be isolated without removing the chip conveyor, significantly improving productivity and enhancing operator convenience.



Independent gantry operation panel

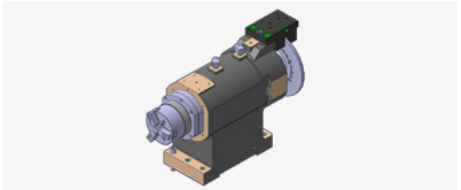
Independent gantry loader operation panel is provided as standard for improved user convenience.

Work counter OPTION

Available counting categories are Total, Daily, and Work. This function further enhances productivity through planned work management.

Built-in spindle OPTION

Recommend the customer who wants high accurracy/high speed/small parts. (available on PUMA TW2100 series)



DN SOLUTIONS FANUC i PLUS

DN Solutions Fanuc i Plus maximizes customer productivity and convenience.

15" Screen + New OP

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

DN Solutions Fanuc i Plus

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

USB and PCMCIA card QWERTY keyboard

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

iHMI touchscreen

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

Range of applications

Providing various applications related to planning, machining, improvement and utility, for customer convenience.

NUMERIC CONTROL SPECIFICATIONS

FANUC

Division	Item	Specifications	TW2100/ TW2600	TW2100M/ TW2600M	TW2100-GL/ TW2600-GL	TW2100M-GL/ TW2600M-GL	TW2100-TWIN GL TW2600-TWIN GL	TW2100M-TWIN GL TW2600M-TWIN GL
Controlled axis	Control paths		2 Path	2 Path	3 Path	3 Path	4 Path	4 Path
	Controlled axis		4 (XR,ZR,XL,ZL)	6 (XR,ZR,CR, XL,ZL,CL)	7 (XR,ZR,XL,ZL)+ (GX,GY,GZ)	9 (XR,ZR,CR, XL,ZL,CL)+ (GX,GY,GZ)	10 (XR,ZR,XL,ZL)+ (XGR,YGR,ZGR, XGL,YGL,ZGL)	12 (XR,ZR,CR,XL,ZL,CL)+ (XGR,YGR,ZGR, XGL,YGL,ZGL)
	Simultaneously controlled axis		2 axes (each path)	3 axes (each path)	2 axes (each path)/ 3 axes(Gantry)	3 axes (each path)/ 3 axes(Gantry)	2 axes (each path)/3 axes (Gantry each path)	3 axes (each path)/3 axes (Gantry each path)
Data input/ output	Data server		○	○	○	○	○	○
	Memory card input/output		●	●	●	●	●	●
	USB memory input/output		●	●	●	●	●	●
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 guide i (Conversational programming solution)		●	●	●	●	●	●
	iHMI with machining cycle	Note *1) Only with 15" Touch LCD standard	○*1)	○*1)	○ *1)	○*1)	○*1)	○*1)
	Multi path function	Supporting 2- or 3-path machine	●	●	●	●	●	●
	EZ operation package		●	●	●	●	●	●
Setting & 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	5120M (2MB) 1000 programs	●	●	●	●	○	○

** Network: FANUC MTConnect and FANUC OPC UA available.*

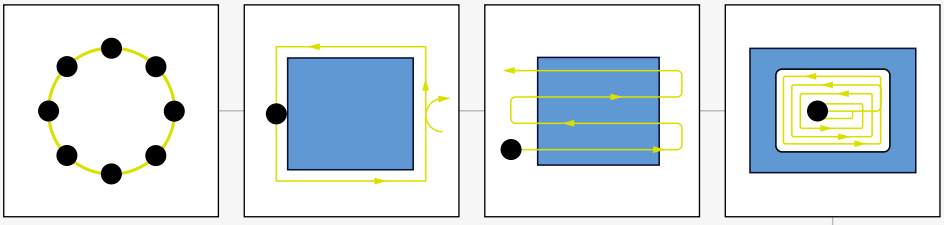
● *Standard* ○ *Optional* X *N/A* ✪ *Available*

DN SOLUTIONS FANUC i PLUS

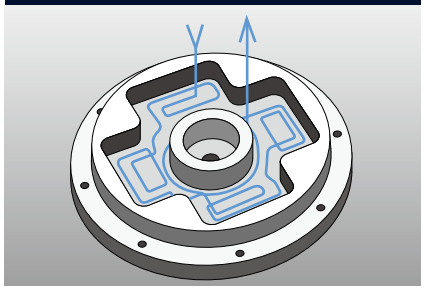
EZ-Guide i

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

Example programming : cutting shape



Example part

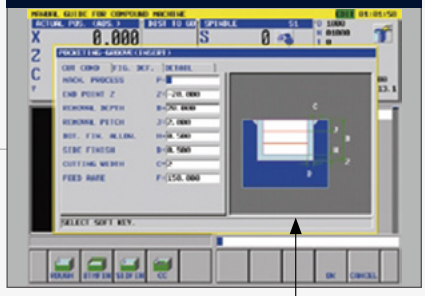


Automatic creation of cutting program

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

A cutting program is automatically created with the entered values.

EZ-Guide i screen

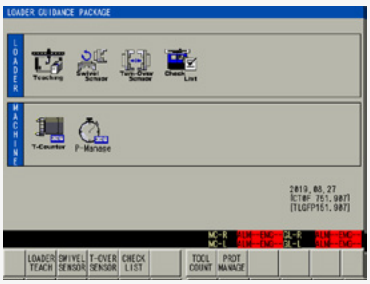


Enter the dimensions of the shape

EZ Work

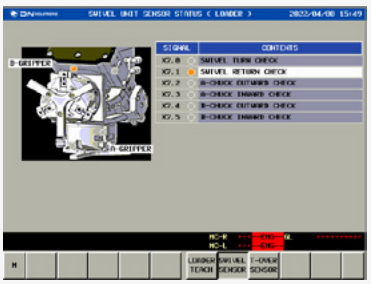
DN Solutions's EZ worksupports the user with functions relating to tool data, error diagnostics, set up and machine monitoring.

Main screen



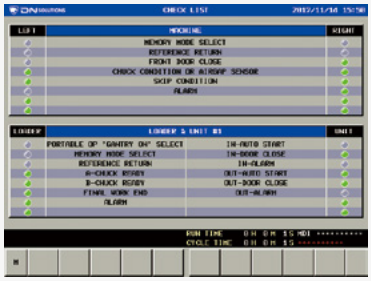
Loader Guidance

For Gantry loader setting and Automation function guide



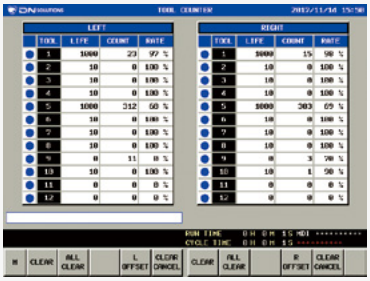
Real time check sensor of loader

The status of the sensor (swivel unit, turn-over unit) in the loader can be checked in real time.



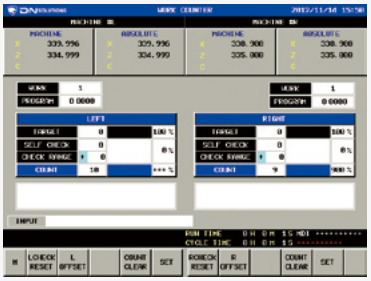
Check list

Operators can check, immediately, the status of the machine and loader.



Tool counter

The tool life management screen displays tool usage and the ratio of tools used.

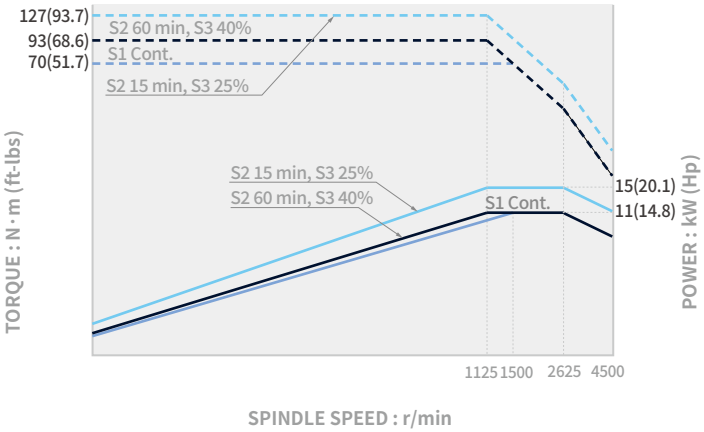


Work counter

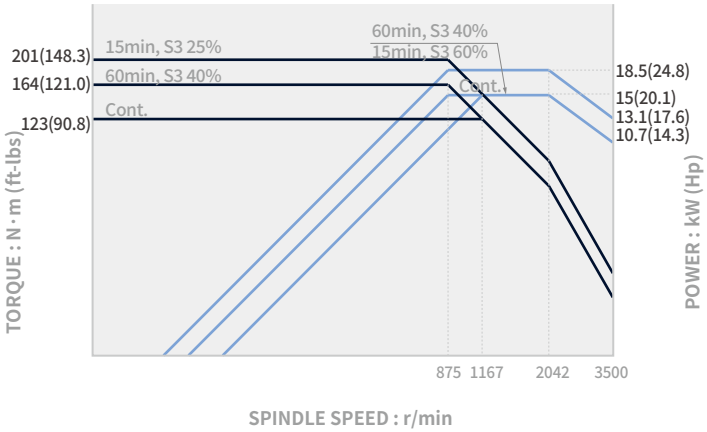
Different screens help manage customers' production scheduling and inspection routines.

POWER | TORQUE

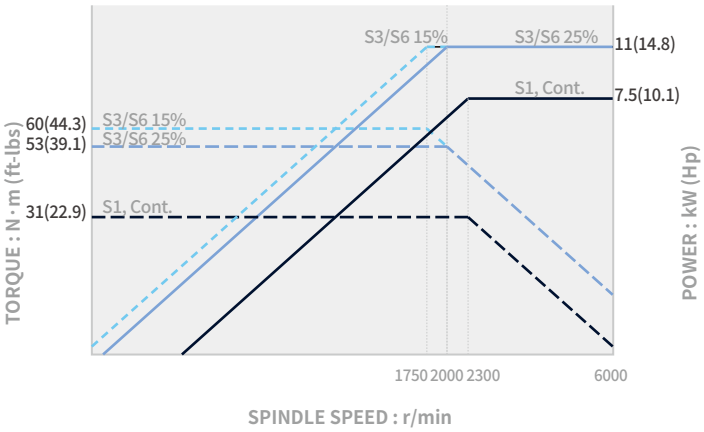
PUMA TW 2100/TW 2100-GL series



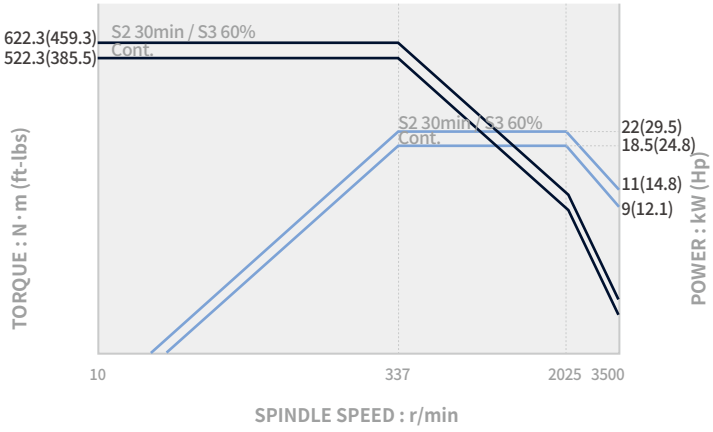
PUMA TW 2600/TW 2600-GL series



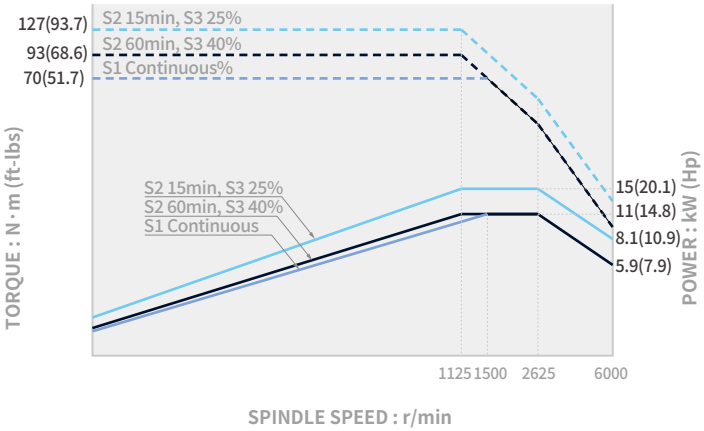
PUMA TW 2100/TW 2100-GL series (Built-in) OPTION



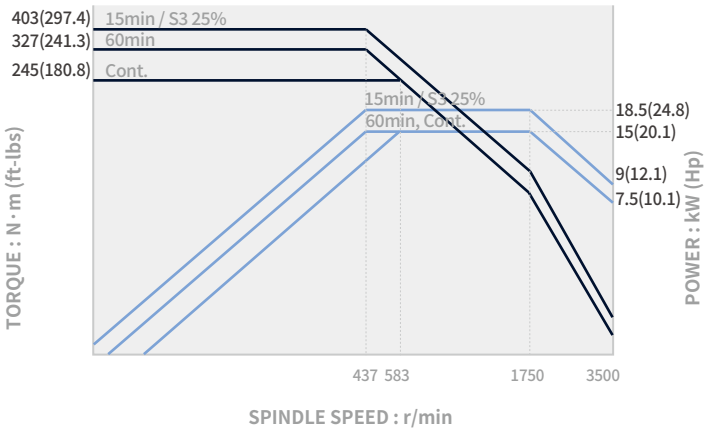
PUMA TW 2600B/TW 2600B-GL series



PUMA TW 2100/TW 2100-GL series (High Speed) OPTION



PUMA TW 2600/GL (High Torque) OPTION



POWER | TORQUE

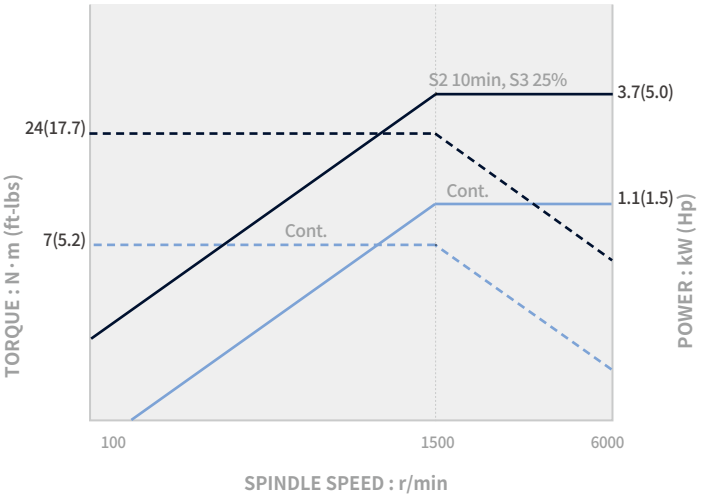
Rotary Tool

PUMA TW 2100/TW 2100-GL series (BMT 45P)

Max. spindle speed
6000 r/min

Max. spindle power
3.7 kW (5.0 Hp)

Max. Spindle torque
24 N·m (17.7 ft-lbs)

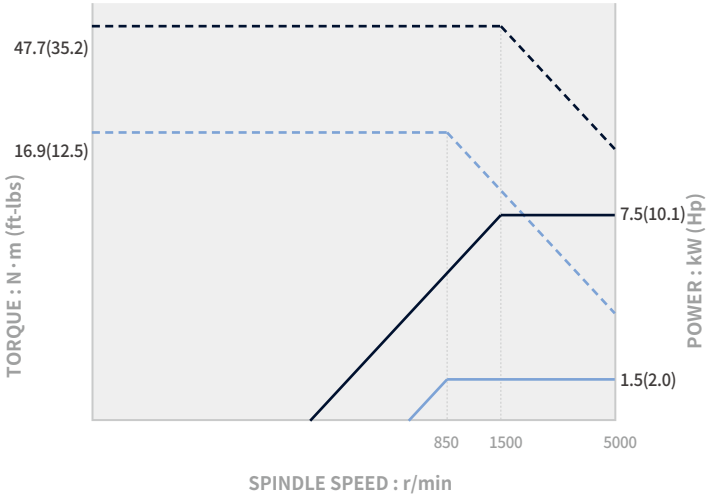


PUMA TW 2600/TW 2600-GL series (BMT 55P)

Max. spindle speed
5000 r/min

Max. spindle power
7.5 kW (10.1 Hp)

Max. Spindle torque
47.7 N·m (35.2 ft-lbs)

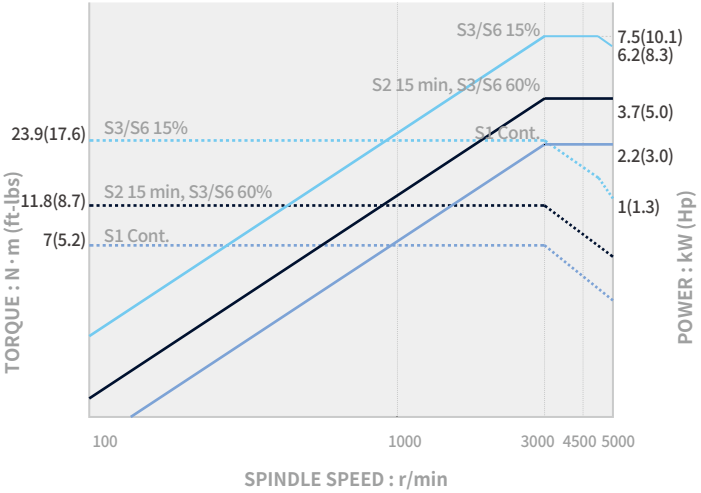


PUMA TW 2100/TW 2100-GL series (BMT 55P) OPTION

Max. spindle speed
5000 r/min

Max. spindle power
7.5 kW (10.1 Hp)

Max. Spindle torque
23.9 N·m (17.6 ft-lbs)

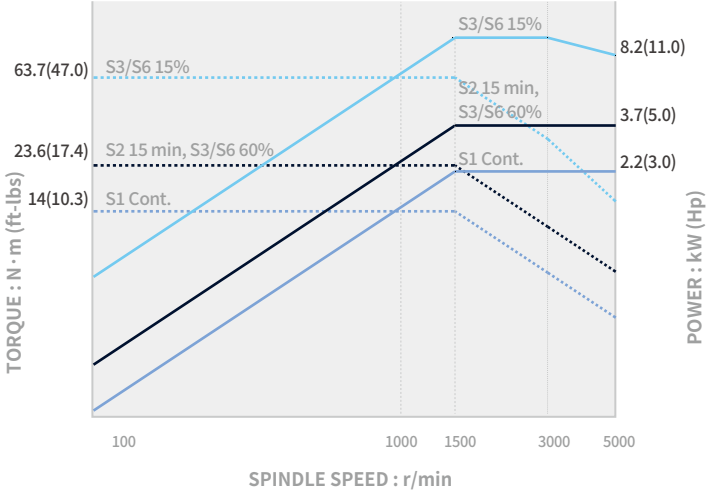


PUMA TW 2600/TW 2600-GL series (BMT 65P) OPTION

Max. spindle speed
5000 r/min

Max. spindle power
8.2 kW (11.0 Hp)

Max. Spindle torque
63.7 N·m (47.0 ft-lbs)

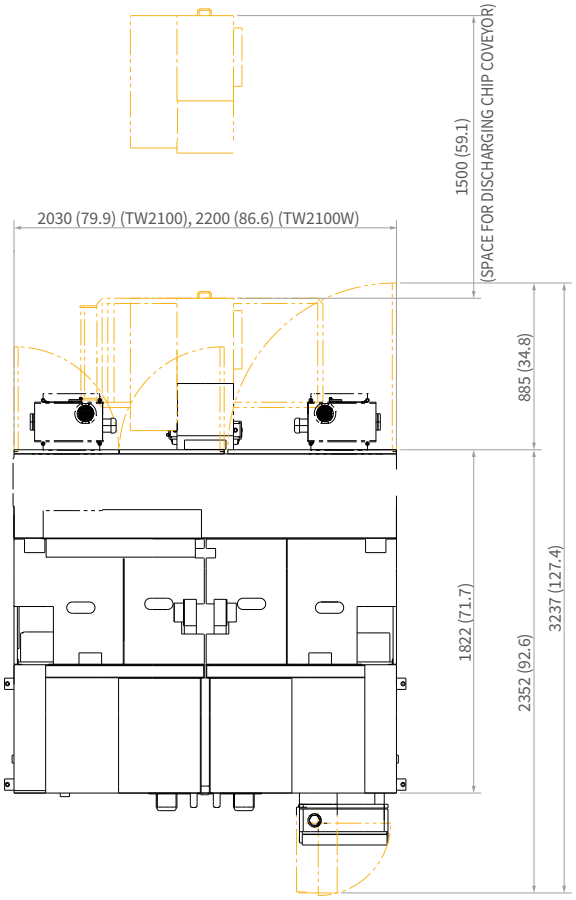


EXTERNAL DIMENSIONS

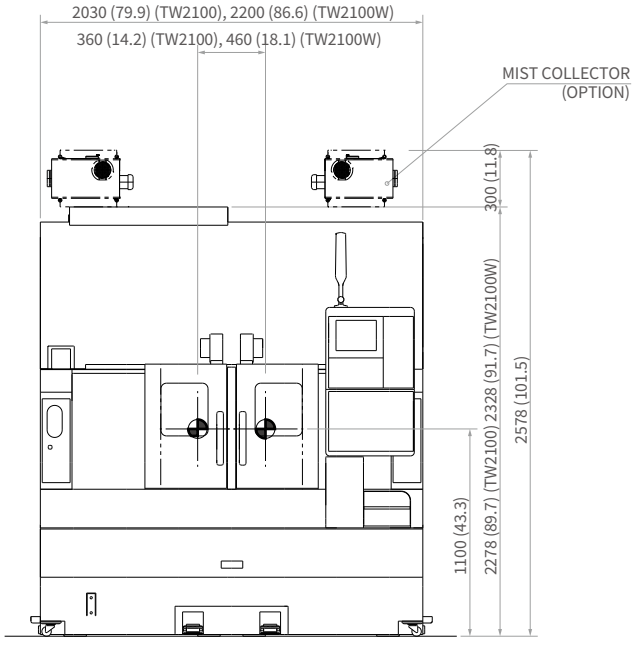
PUMA TW 2100/M

Unit : mm (inch)

TOP



FRONT

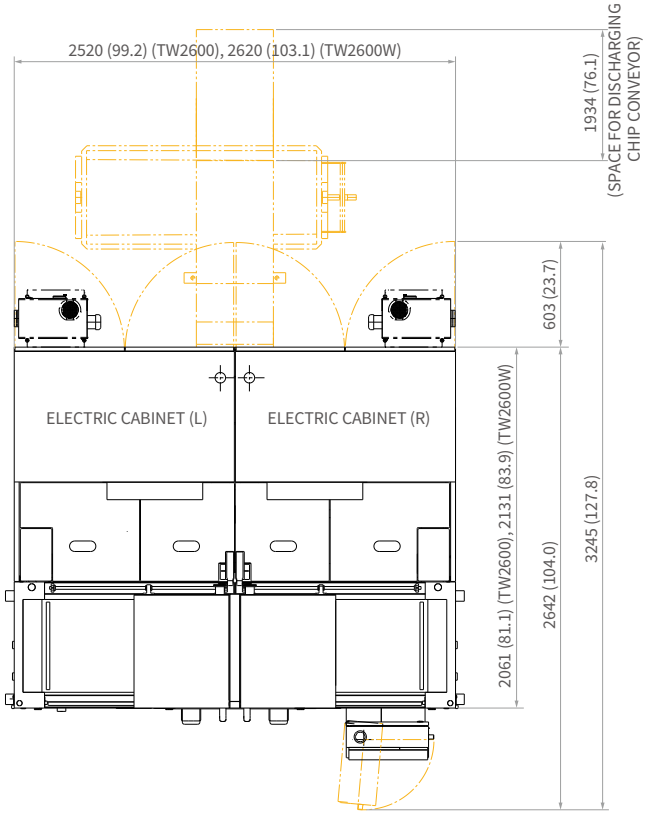


EXTERNAL DIMENSIONS

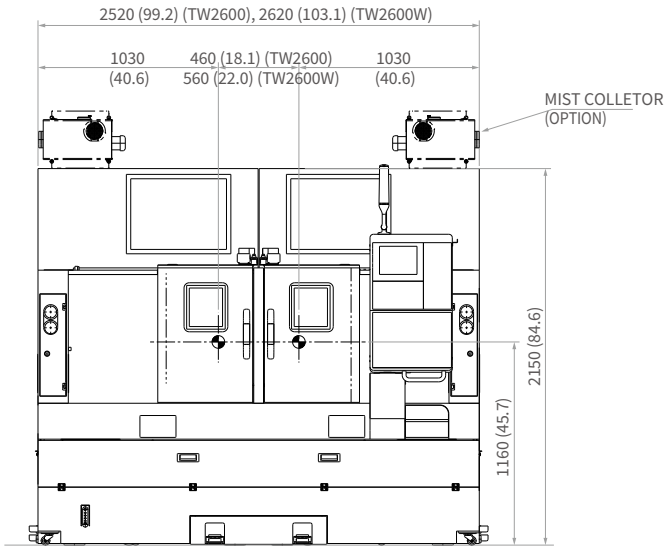
PUMA TW 2600/M (TW 2600B/MB)

Unit : mm (inch)

TOP



FRONT

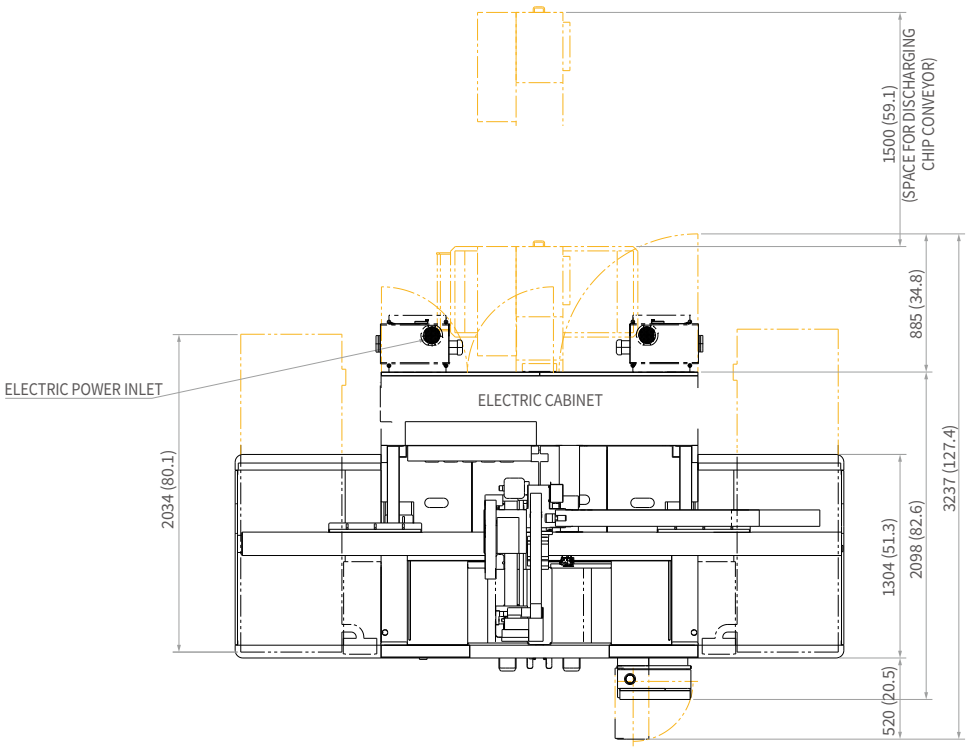


EXTERNAL DIMENSIONS

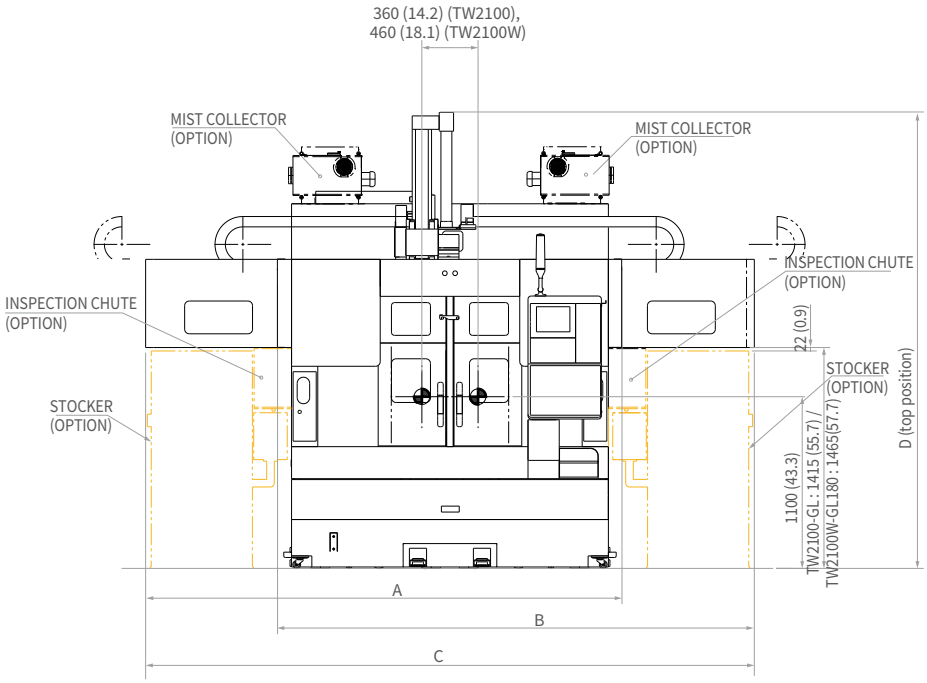
PUMA TW 2100-GL series

Unit : mm (inch)

TOP



FRONT



	A	B	C	D
PUMA TW 2100-GL130 (A1 type)	3295 (129.7)	-	-	2921 (115.0)
PUMA TW 2100-GL130 (A2 type)	-	3295 (129.7)	-	2921 (115.0)
PUMA TW 2100-GL130 (A3 type)	-	-	3900 (153.5)	2921 (115.0)
PUMA TW 2100-GL180 (A1 type)	3795 (149.4)	-	-	2971 (117.0)
PUMA TW 2100-GL180 (A2 type)	-	3795 (149.4)	-	2971 (117.0)
PUMA TW 2100-GL180 (A3 type)	-	-	4570 (179.9)	2971 (117.0)

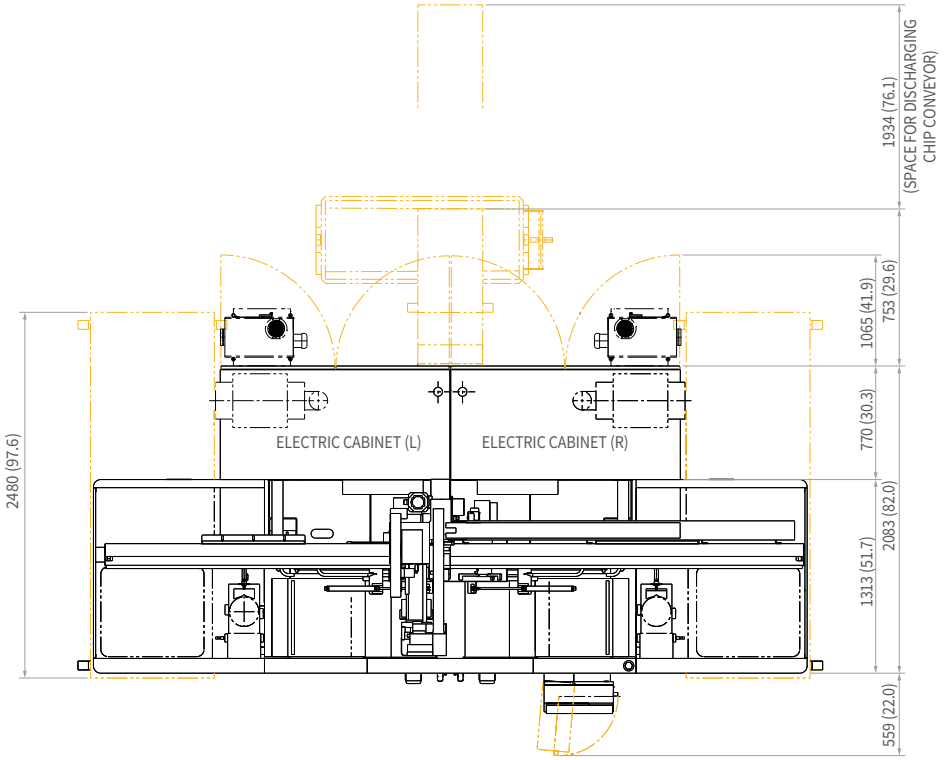
** Some peripheral equipment can be placed in other places*

EXTERNAL DIMENSIONS

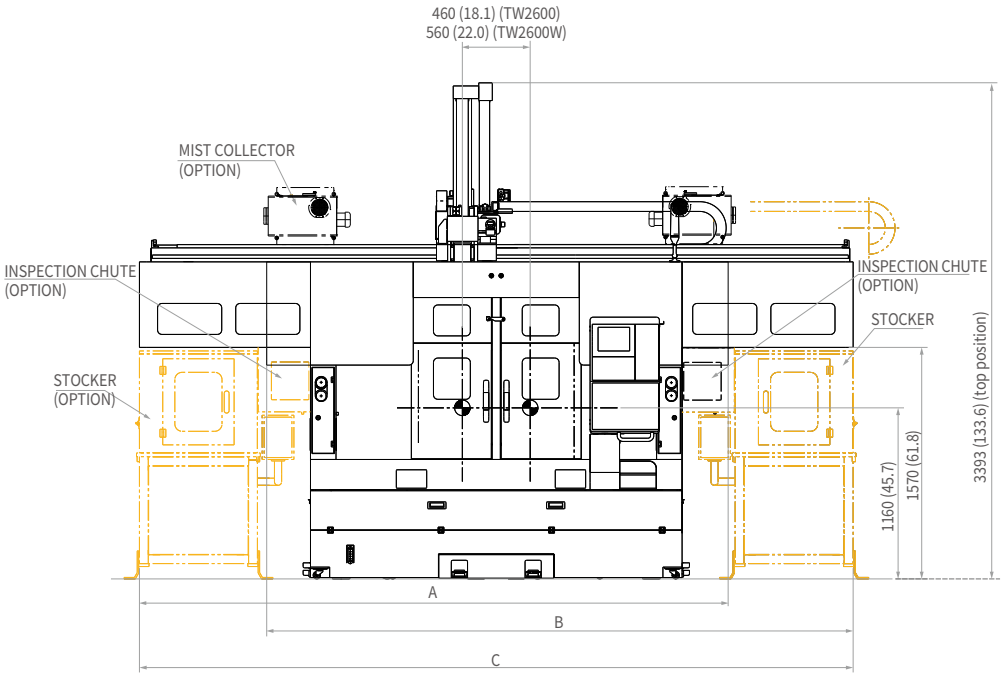
PUMA TW 2600-GL series (TW 2600B/MB)

Unit : mm (inch)

TOP



FRONT



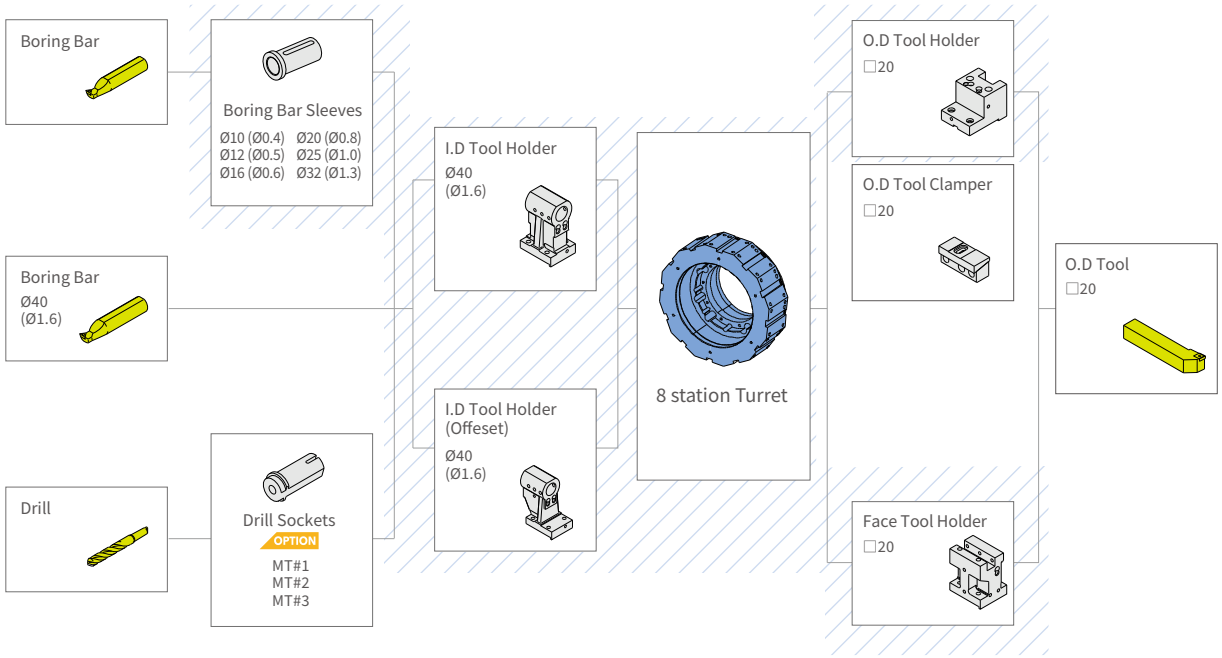
	A	B	C
PUMA TW 2600-GL200 (A1 type)	4150 (163.4)	-	-
PUMA TW 2600-GL200 (A2 type)	-	4150 (163.4)	-
PUMA TW 2600-GL200 (A3 type)	-	-	4840 (190.6)
PUMA TW 2600-GL320 (A1 type)	4575 (180.1)	-	-
PUMA TW 2600-GL320 (A2 type)	-	4575 (180.1)	-
PUMA TW 2600-GL320 (A3 type)	-	-	5170 (203.5)

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

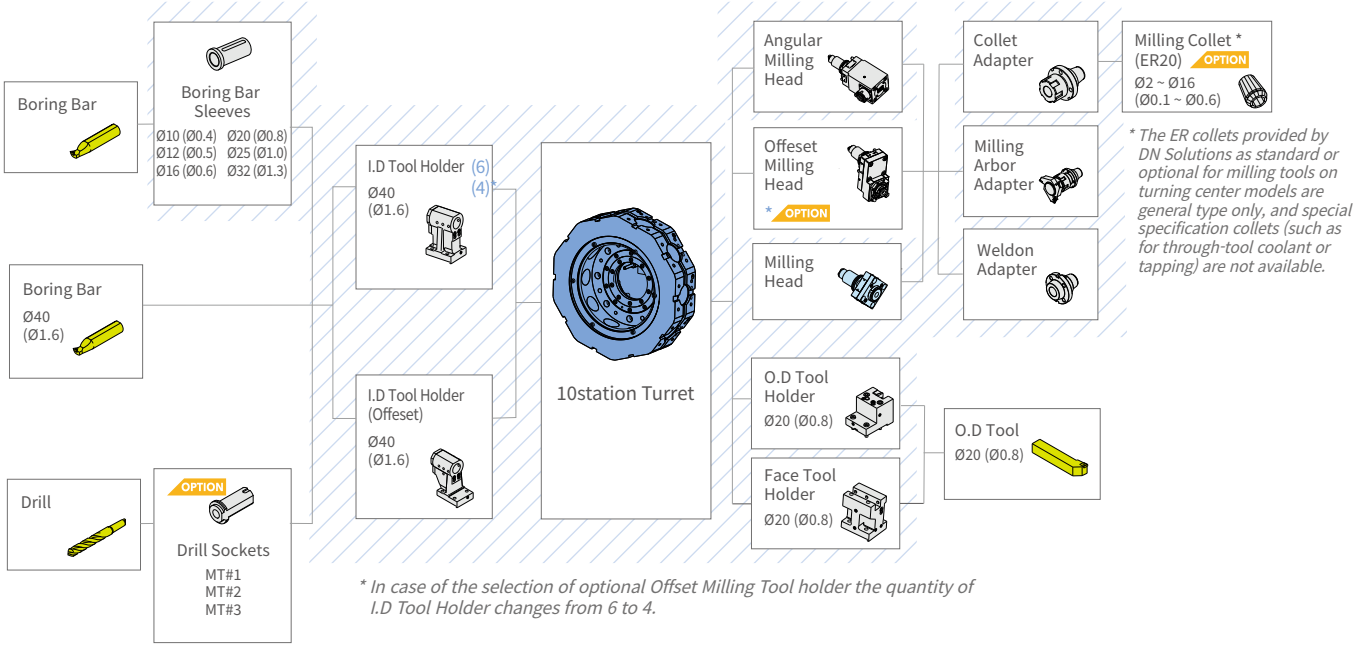
TOOLING SYSTEM

PUMA TW 2100/2100-GL

Unit : mm (inch)



PUMA TW 2100M/2100M-GL



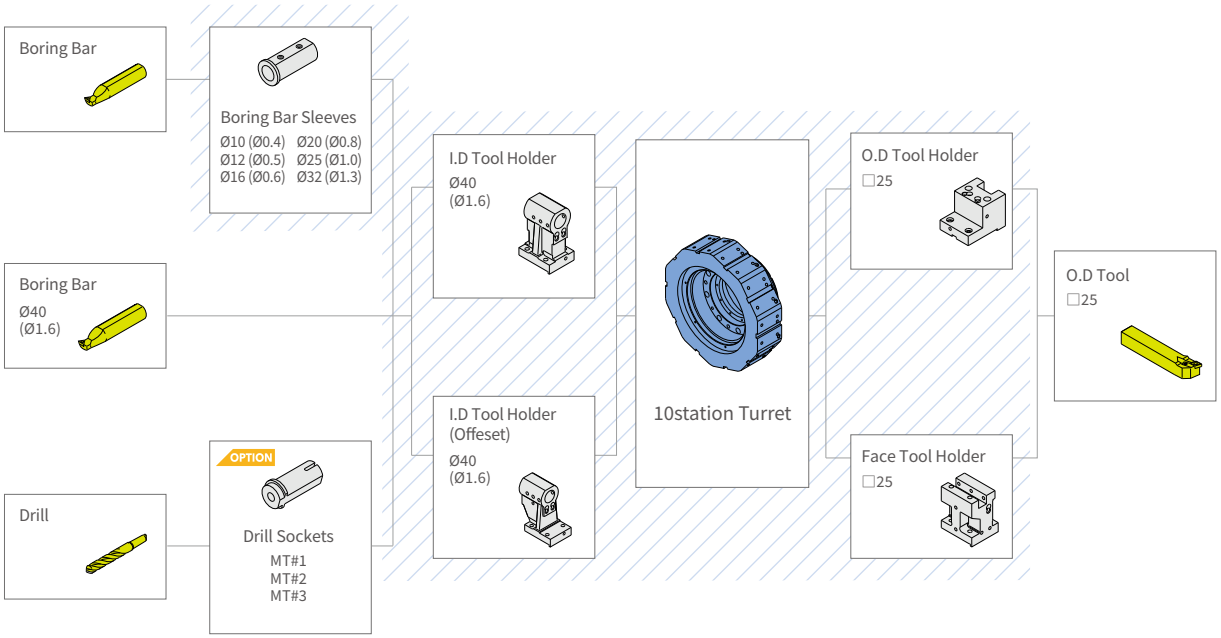
** The ER collets provided by DN Solutions as standard or optional for milling tools on turning center models are general type only, and special specification collets (such as for through-tool coolant or tapping) are not available.*

** In case of the selection of optional Offset Milling Tool holder the quantity of I.D Tool Holder changes from 6 to 4.*

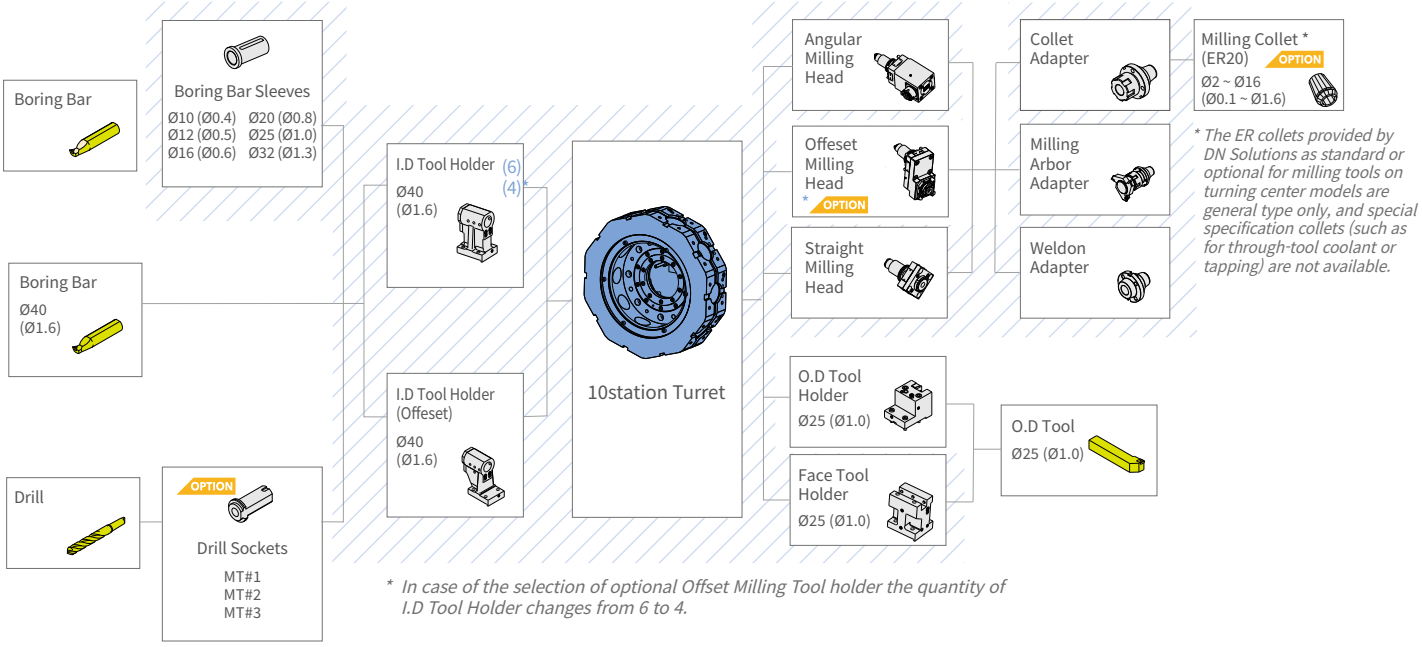
TOOLING SYSTEM

PUMA TW 2600/2600-GL

Unit : mm (inch)



PUMA TW 2600M/2600M-GL



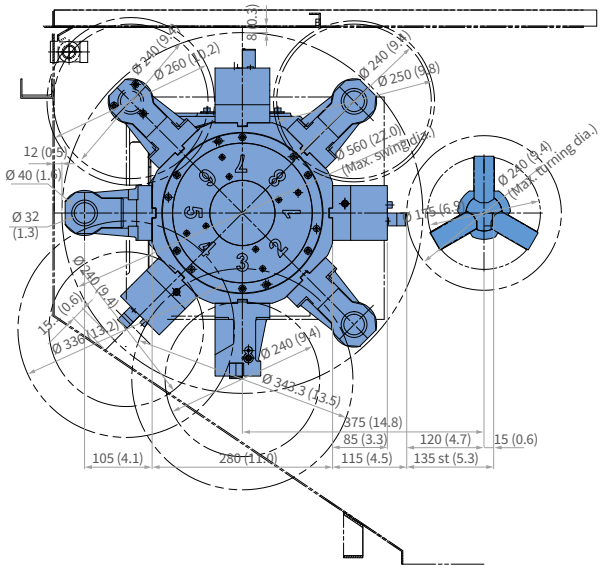
* *The ER collets provided by DN Solutions as standard or optional for milling tools on turning center models are general type only, and special specification collets (such as for through-tool coolant or tapping) are not available.*

* *In case of the selection of optional Offset Milling Tool holder the quantity of I.D Tool Holder changes from 6 to 4.*

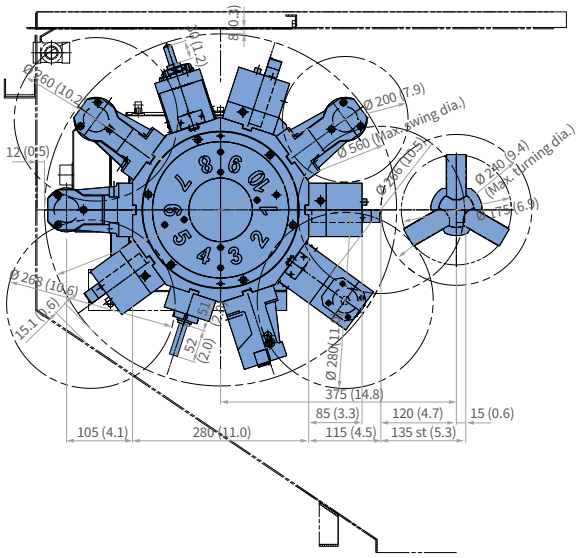
TOOL INTERFACE

Unit : mm (inch)

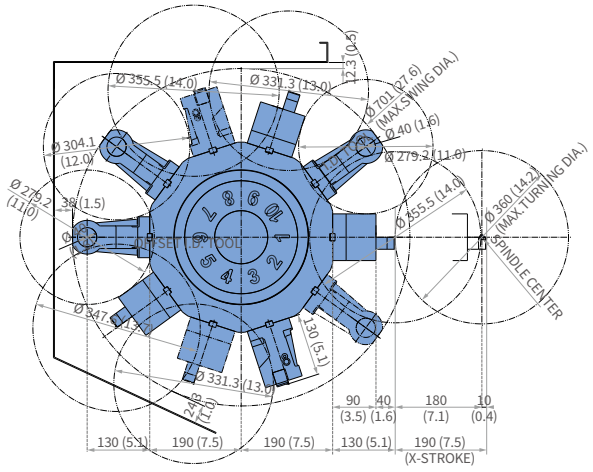
PUMA TW 2100/2100-GL-GL
(2 AXIS, 8 STATION)



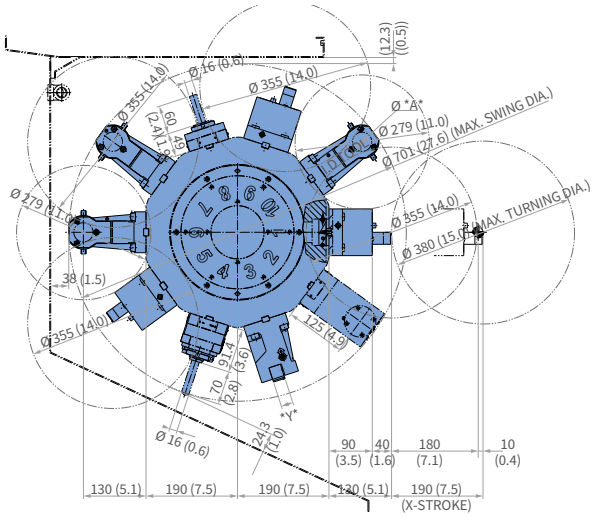
PUMA TW 2100M/2100M-GLM
(3 AXIS, 10 STATION, BMT45P)



PUMA TW 2600/PUMA TW 2600-GL
(2 AXIS, 10 STATION)



PUMA TW 2600M/TW 2600M-GL
(3 AXIS, 10 STATION, BMT55P)

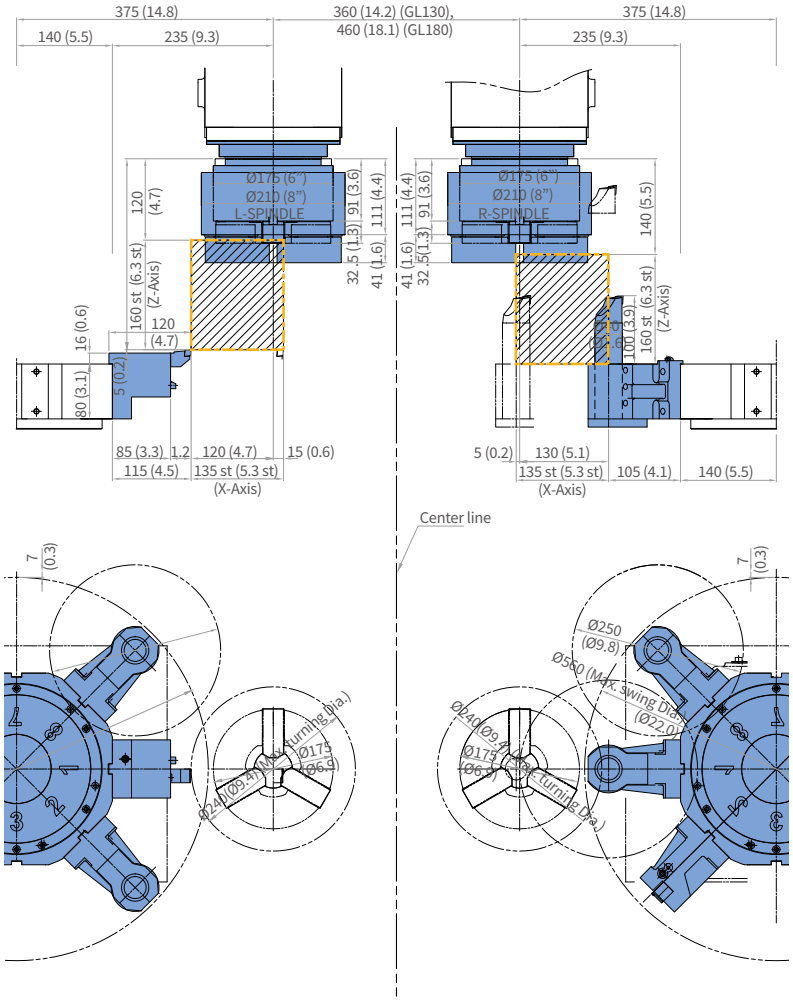


WORKING RANGE

PUMA TW 2100/2100-GL

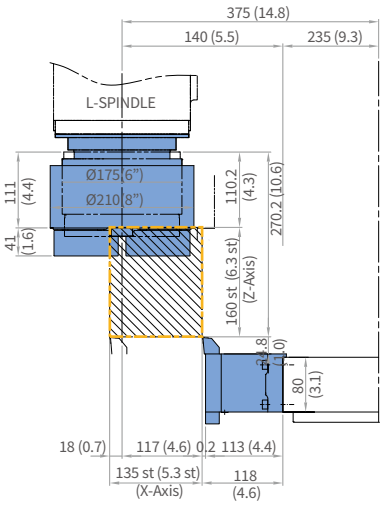
Unit : mm (inch)

O.D HOLDER

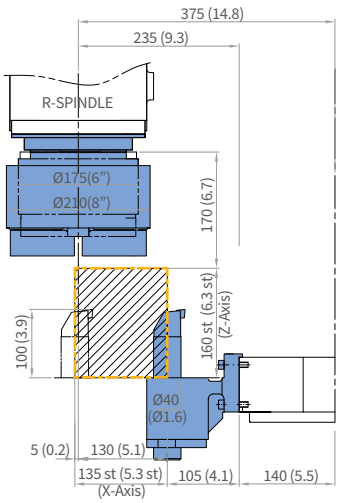


I.D HOLDER

FACE TOOL HOLDER



OFFSET I.D HOLDER

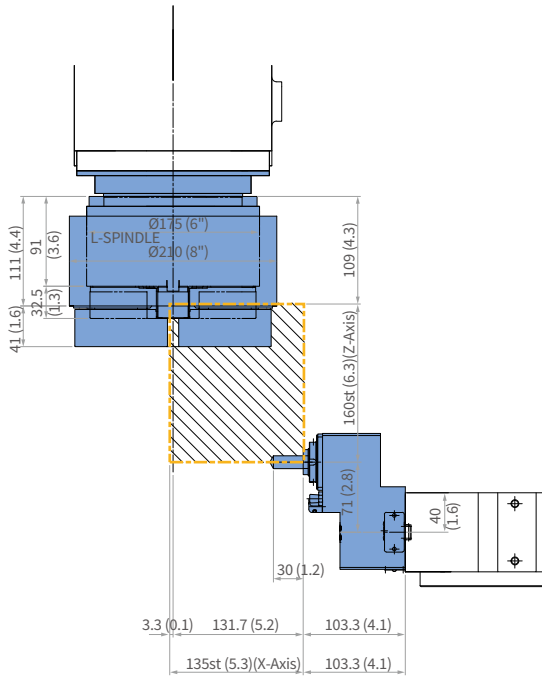


WORKING RANGE

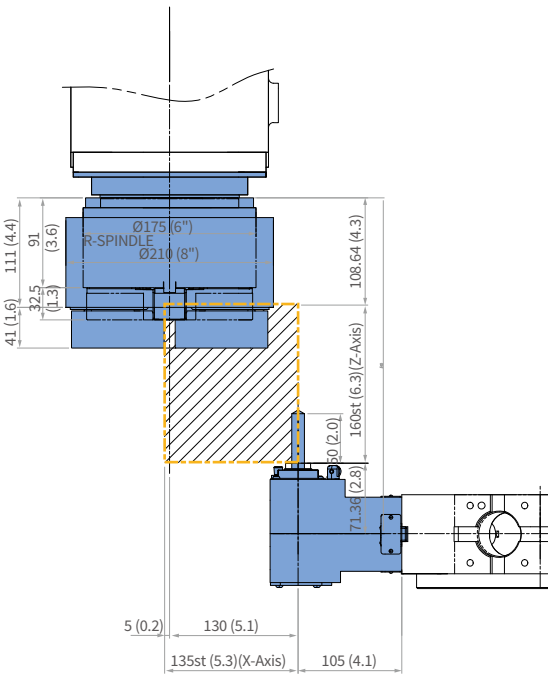
PUMA TW 2100M/2100M-GL

Unit : mm (inch)

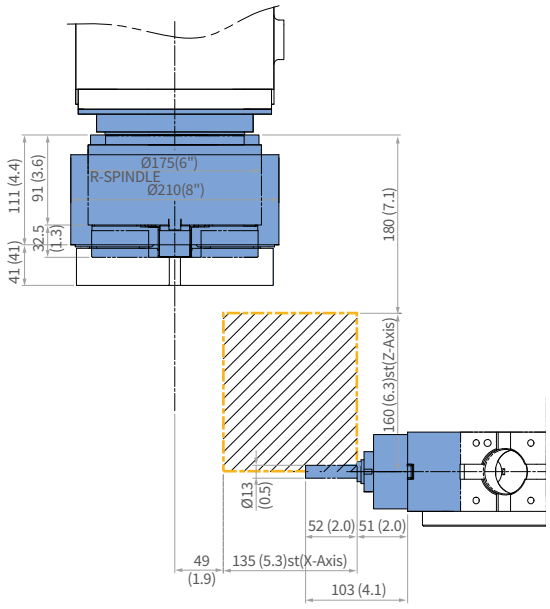
OFFSET MILLING HEAD OPTION



ANGULAR MILLING HEAD



STRAIGHT MILLING HOLDER

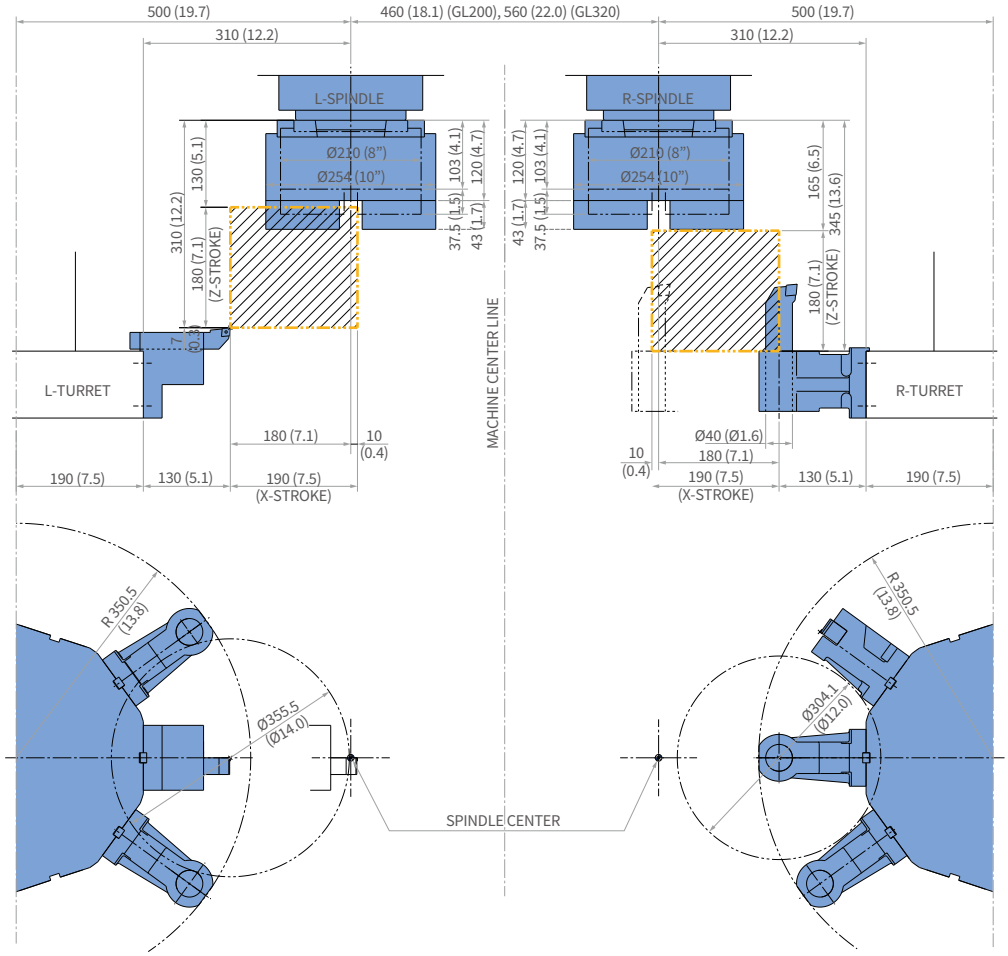


WORKING RANGE

PUMA TW 2600/2600-GL

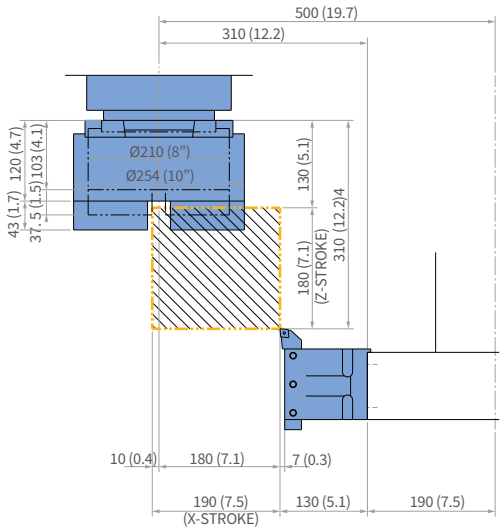
Unit : mm (inch)

O.D HOLDER

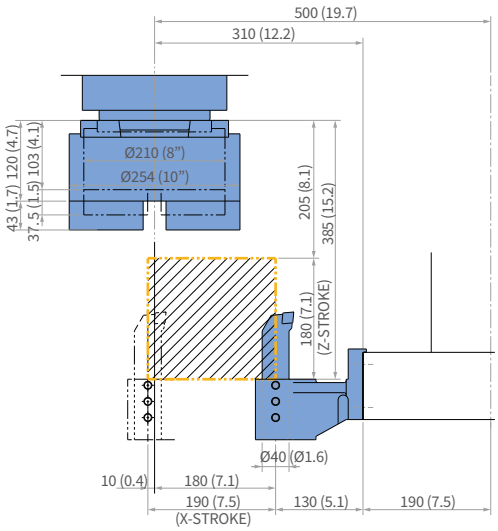


I.D HOLDER

FACE TOOL HOLDER



OFFSET I.D HOLDER

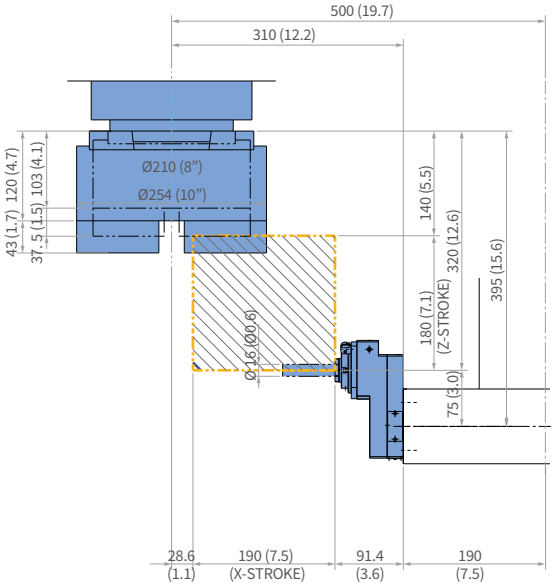


WORKING RANGE

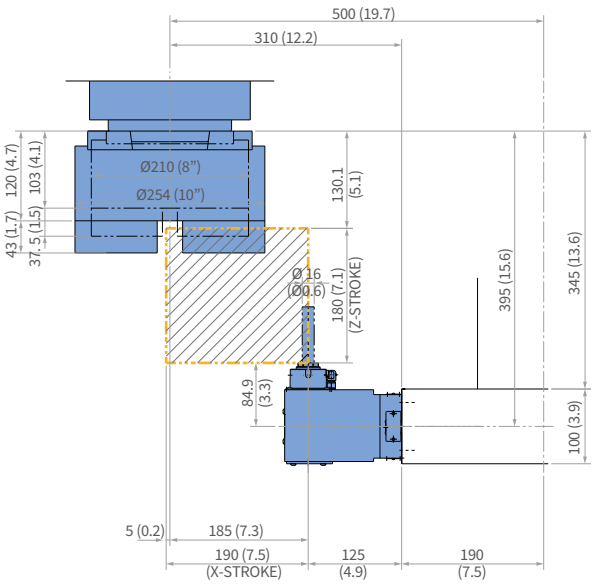
PUMA TW 2600M/2600M-GL

Unit : mm (inch)

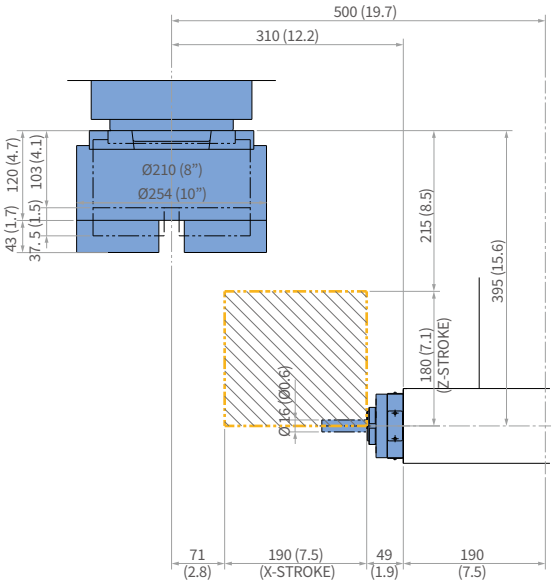
OFFSET MILLING HOLDER OPTION



ANGULAR MILLING HOLDER



STRAIGHT MILLING HOLDER



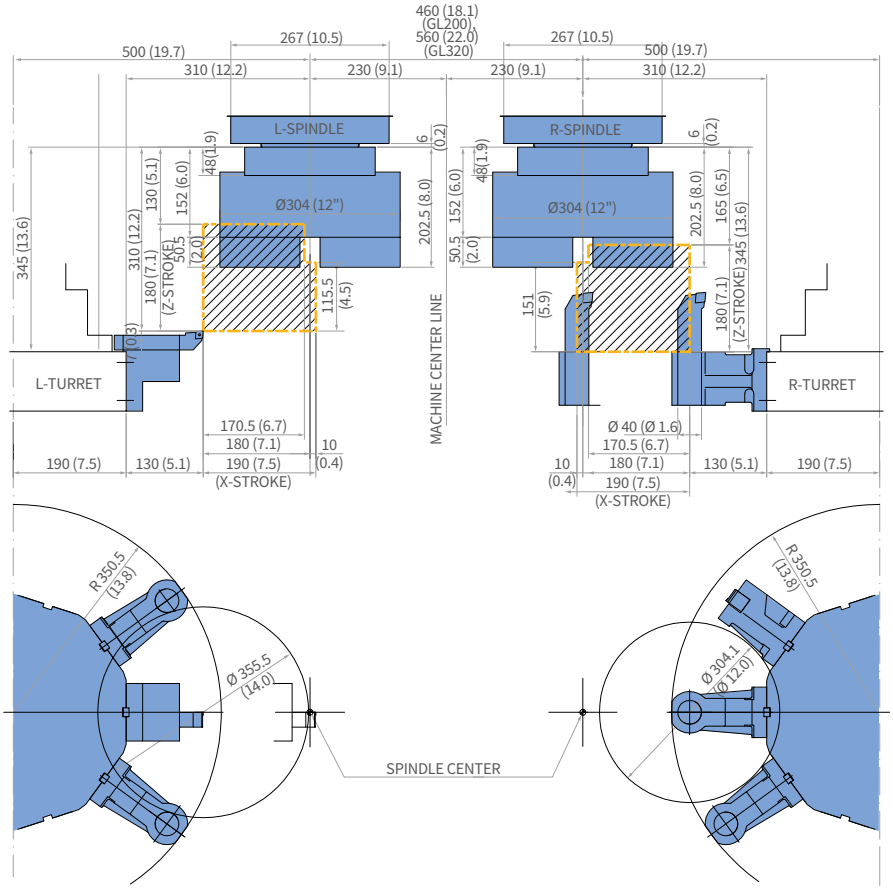
WORKING RANGE

PUMA TW 2600MB

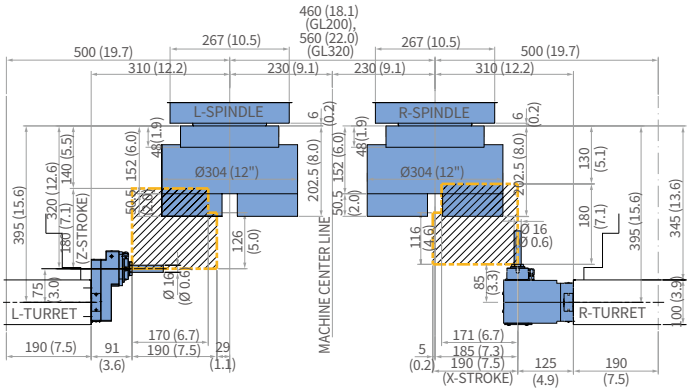
Unit : mm (inch)

O.D HOLDER

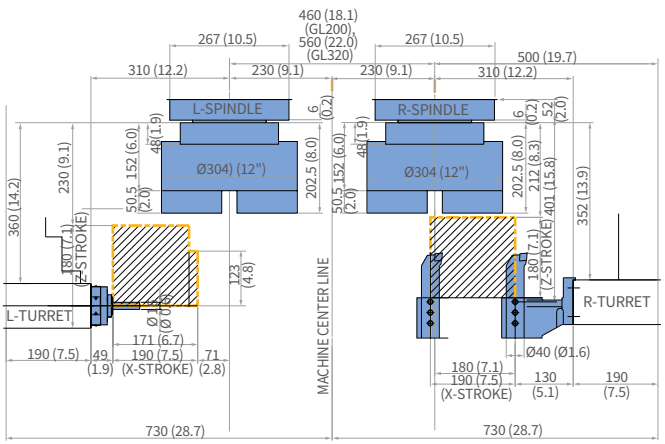
I.D HOLDER



FACE TOOL HOLDER



OFFSET I.D HOLDER



MACHINE SPECIFICATIONS

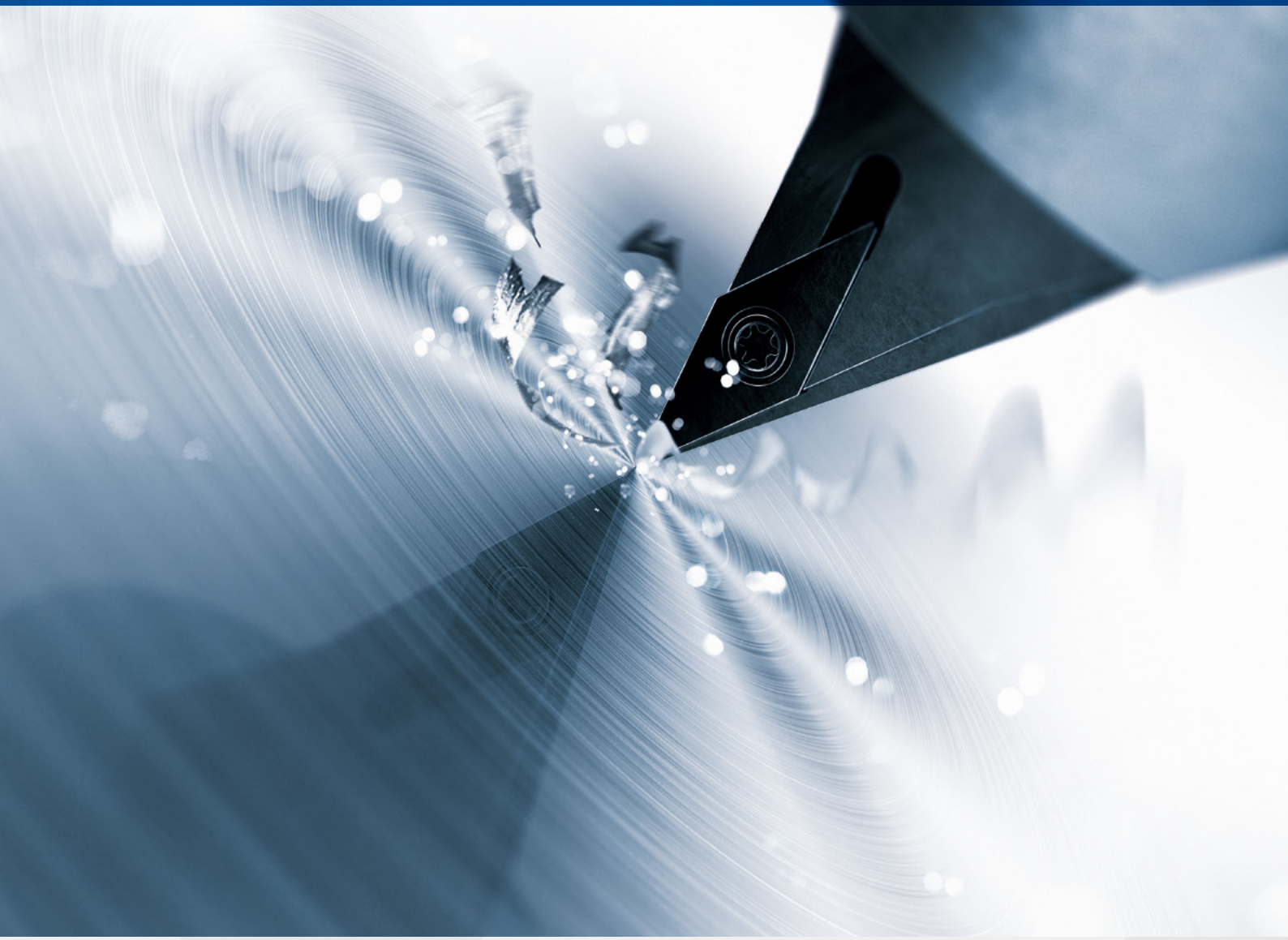
PUMA TW 2100/2600/M/W/WM · TW 2600B/M

Description			Unit	PUMA TW2100 [M] [W] [WM]	PUMA TW2100-GL [M/W/WM-GL]	PUMA TW2600 [M] [W] [WM]	PUMA TW2600-GL [M/W/WM-GL]	PUMA TW2600B [GL/MB/MB-GL]
Capacity	Recommended turning diameter		mm (inch)	Ø160 (Ø6.3)	-	Ø255 (Ø10.0)	-	Ø255 (Ø10.0)
	Max. turning diameter (Max. / Min.)		mm (inch)	Ø240 (Ø9.4)	Ø130 / Ø30 (Ø5.1 / Ø1.2) (GL130) Ø180 / Ø30 (Ø7.1 / Ø1.2) (GL180)	Ø360 (Ø14.2)	Ø200 / Ø50 (Ø7.9 / Ø2.0) (GL200) Ø320 / Ø50 (Ø12.6 / Ø2.0) (GL320)	Ø360 (Ø14.2)
	Max. turning length		mm (inch)	128 (5.0)	80 (3.1)	170 (6.7)	120 (4.7)	170 (6.7)
	Chuck size	Optional 1	mm (inch)	Ø210 (8")		Ø255 (10")		Ø304 (12")
		Optional 2	mm (inch)	Ø175 (6")		Ø210 (8"), Ø305 (12")		-
Travel	Travel distance	X axis	mm (inch)	135 (5.3)		190 (10+180) (7.5 (0.4+7.1))		190 (10+180) (7.5 (0.4+7.1))
		Z axis	mm (inch)	160 (6.3)		180 (7.1)		180 (7.1)
Feedrate	Rapid traverse rate	X axis	m/min (ipm)	24 (944.9)				
		Z axis	m/min (ipm)	24 (944.9)				
Spindle	Max. spindle speed		r/min	4500[1] {6000[2]}		3500		3500
	Max. spindle power (15 min/cont.)		kW (Hp)	15/11 (20.1/14.8) {BUILT-IN 11/7.5 (14.8/10.1)}		18.5/15 (24.8/20.1)		22/18.5 (29.5 /24.8)
	Max. spindle torque		N·m (ft-lbs)	127(93.7) {BUILT-IN 60 (44.3)}		201 {403} (148.3 {297.4})		622 (459.0)
	Distance between left-right spindle centers		mm (inch)	360 (14.2) (GL130), 460 (18.1) (GL180)		460 (18.1) (GL200), 560 (22.0) (GL320)		
	Spindle nose			A2-5		A2-6		A2-8
	Spindle bearing size (front face I/D)		mm (inch)	Ø90(Ø3.5) {BUILT-IN Ø80(Ø3.1)}		Ø110 (Ø4.3)		Ø130 (Ø5.1)
	Spindle hole through diameter		mm (inch)	Ø61 (Ø2.4) {BUILT-IN Ø53(Ø2.1)}		Ø61 (Ø2.4)		Ø91 (Ø3.6)
Turret	No. of tool stations		ea	8+8 [10+10]		10+10		
	OD tool size			□20 (□0.8)		□25 (□1.0)		□25 (□1.0)
	Max. boring bar size		mm (inch)	Ø40 (Ø1.6)				
	Turret Indexing time (1 station swivel)		sec	0.16				
Rotary Tool	Max. spindle speed		r/min	6000		5000		
	Max. spindle torque		N·m (ft-lbs)	23.5 (17.3)		47.7 (35.2)		
	Tool holder Type			BMT45P {55P}*		BMT55P {65P}*		
Power	Power consumption		kVA	53.91 [55.91]	58.47 [60.47]	69.97 [73.97]	73.97 [76.97]	76.05 [79.05 /80.05/83.05]
Dimensions	Length		mm (inch)	STD/WIDE 2030 (79.9) / 2200 (86.6)	GL130/GL180 2030 (79.9) / 2200 (86.6)	STD/WIDE 2520 (99.2) / 2620 (103.1)	GL200/GL320 2520 (99.2) / 2620 (103.1)	GL200/GL320 2520 (99.2) / 2620 (103.1)
	Width*		mm (inch)	2098 (82.6)		2061 (81.1)		
	Height (Max. / Min.)		mm (inch)	2278 (89.7)	2921 (115.0)	2150 (84.6)	3393 (133.6)	2150 (84.6)
	Weight		kg (lb)	4650 [4750] (10251.3 [10471.])	GL130/GL180 5200/5250 (11463.9/ 11574.1) [5250/5300] 5200(11463.9) /5250 (11574.1)	GL200/GL320 7200/7250 (15873.0/ 15983.3) [7300/7350]	GL200/GL320 7730/7780 (17041.5/ 17151.7) [7830/7880]	GL200/GL320 7200/7250 (15873.0/ 15983.3) [7300/7350] [7730/7780]
Control	CNC system			DN Solutions F anuc i Plus				

*1) For 8"Chuck size 2) For 5,6"Chuck size *{ } Option*

WHY DN SOLUTIONS

The DN Solutions promise, MACHINE GREATNESS, has two important meanings. The first is simple: DN Solutions makes great machines. The second is a challenge to our end-users. With a product line that is this comprehensive, accurate and reliable, we equip our customers to machine greatness.
The big question: ***Why should you choose DN Solutions over other options?*** Here's why…



UNBEATABLE MACHINES

You won't find a more comprehensive range or a better combination of value, performance and reliability anywhere else.

READILY AVAILABLE - ANYWHERE IN THE WORLD

Machining centres (including 5-axis machines), lathes, multi-tasking turning centres and mill-turn machines, and horizontal borers with best-in-class specifications are all available…ready to install.

ROBUST PRODUCT LINE

We offer an impressive range of machine models and hundreds of configurations. Whatever your machining needs and requirements, there's a DN Solutions for you.

EXPERT SERVICE

Our dedicated, experienced and knowledgeable team is totally committed to improving your productivity, growth and success.

RESPONDING TO CUSTOMERS **ANYTIME, ANYWHERE**

DN SOLUTIONS GLOBAL NETWORK

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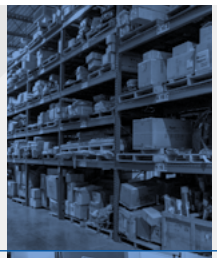
FIELD SERVICES

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



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

TRAINING

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- Applications engineering

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- Provides technical consultancy

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

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