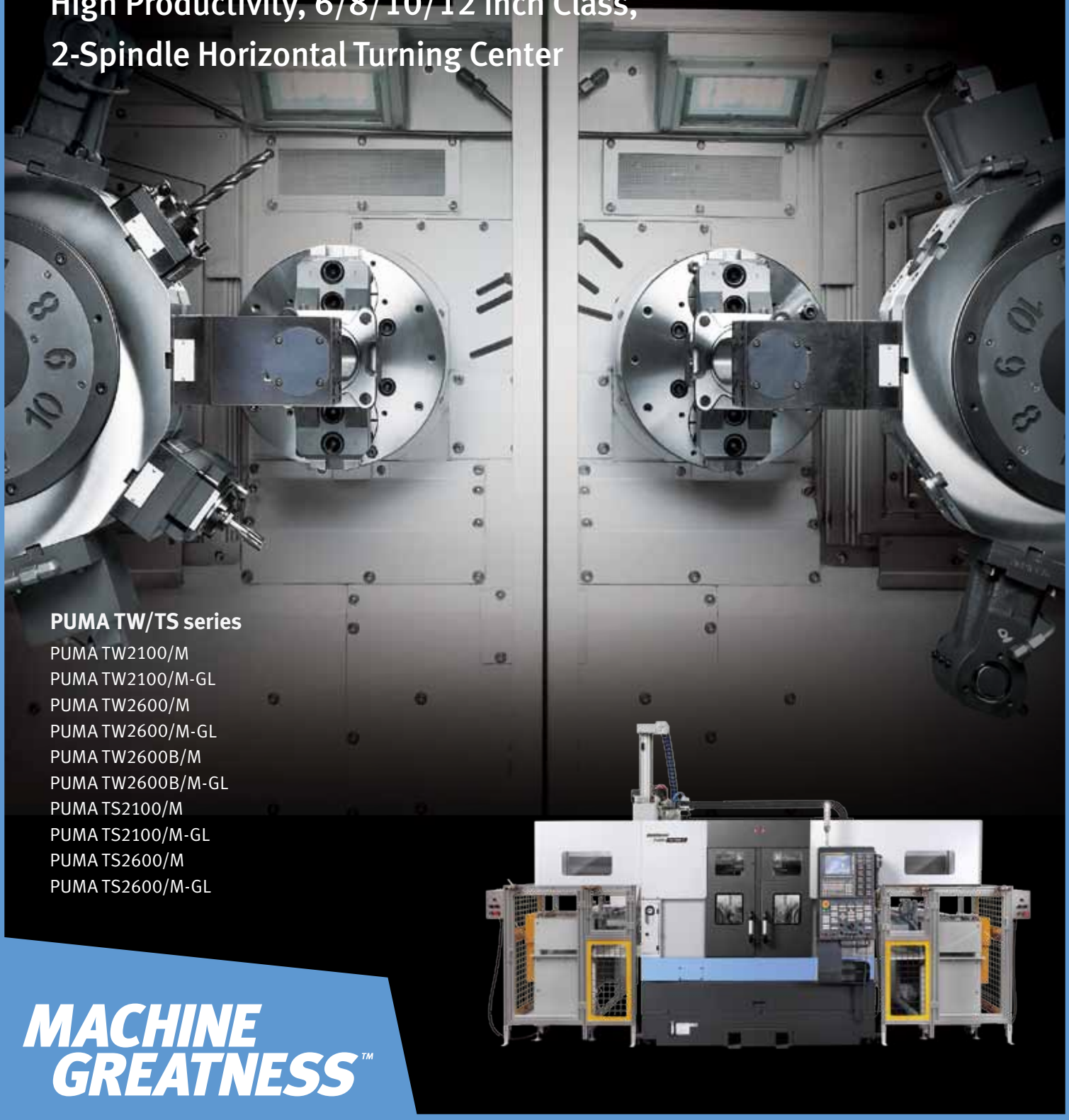
DOOSAN

PUMA TW/TS series

High Productivity, 6/8/10/12 inch Class, 2-Spindle Horizontal Turning Center



PUMA TW/TS series

PUMA TW2100/M
PUMA TW2100/M-GL
PUMA TW2600/M
PUMA TW2600/M-GL
PUMA TW2600B/M
PUMA TW2600B/M-GL
PUMA TS2100/M
PUMA TS2100/M-GL
PUMA TS2600/M
PUMA TS2600/M-GL

MACHINE GREATNESS™

Basic Information

Basic Structure
Cutting Performance
TW Automation Solution

Detailed Information

Options
Applications
Diagrams
Specifications

Customer Support Service

PUMA TW2100-GL130

PUMA TW/TS series

The 6 / 8 / 10 / 12 inch class PUMA TW/TS series turning center is a next-generation standard, 2-spindle automation machine tool providing the users with even higher level of satisfaction with excellent productivity and accuracy.

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PUMA TW2600-GL200

PUMA TS2600-GL200

Superior Productivity

Implemented with the Feed System Optimization Technology, the PUMA TW/TS Series offer the highest productivity of the class, including high performance feed motor, rapid traverse and acceleration/ deceleration control by section.

Superior Machining Performance

PUMA TW/TS series has maximum machining performance based on high power and torque performance in their same range model. BMT turret applied to M type Doosan's unique technology enables superior milling Performance.

Improved User Convenience

EOP, hot keys and various convenience functions are provided for operating functions and peripheral devices. Work counting, gantry operation and parts control functions further improve the user convenience, especially, in mass production.

Basic structure

PUMA TW/TS series has box Guideway type that Strong against vibration/ unexpected impact. it shows Excellent processing stability, Good for tool life.

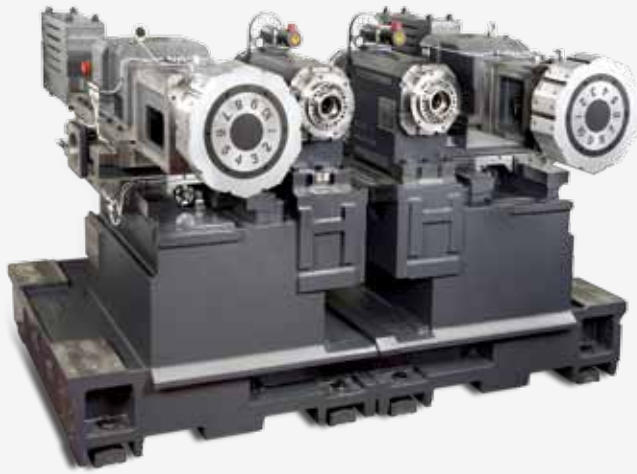
Chuck size **Box guide way**

PUMATW/TS 2600 series

8, 10, 12 inch

PUMA TW/TS 2100 series

6, 8 nch



Chuck size	machine	Travel distance (mm (inch))		Rapid traverse rate (m/min (ipm))		functions	
		X axis	Z axis	X axis	Z axis	2 axis	M
6, 8 inch	PUMA TW/TS 2100/M	135 (5.3)	160 (6.3)	24 (944.9)	24 (944.9)	O	O
	PUMA TW/TS 2100GL/M-GL						
8, 10, 12 inch	PUMA TW/TS 2600/M	190 (7.5)	180 (7.1)	24 (944.9)	24 (944.9)	O	O
12 inch	PUMA TW2600B/MB						

Machining Area

The Series offers the largest machining area of the same class, up to Ø360 mm (Ø14.2 inch) and 170mm (6.7 inch) of max. turning diameter and max. turning length, respectively.

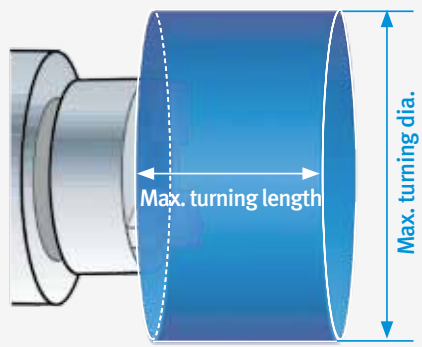
Max. machining area

Max. turning diameter

ø360 mm
(ø14.2 inch)

Max. turning length

170 mm
(6.7 inch)



Description		Unit	PUMA TW/TS 2100/M	PUMA TW/TS 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	Standard	mm (inch)	Ø210 (8")	Ø255 (10")	Ø304 (12")
	Optional		Ø 160(6")	Ø210 (8"), Ø305 (12")	X

Spindle

The high power/ torque motor support high precision and heavy-duty cutting, improving productivity.

Max. spindle speed

PUMA TW/TS 2100 series

4500{6000 option} r/min

PUMA TW/TS2600 series

3500 r/min

Max. spindle motor torque

PUMA TW/TS 2600 series

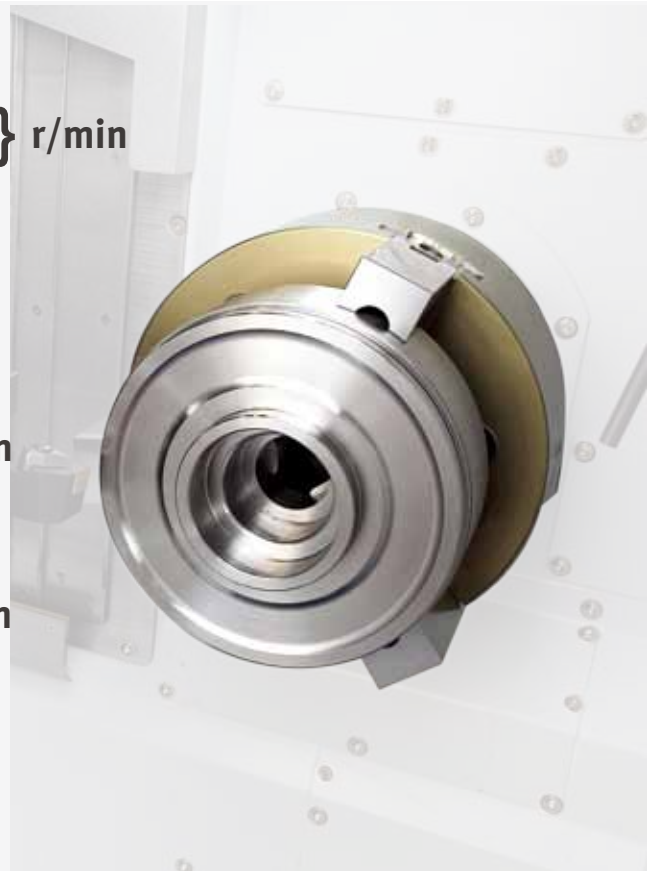
202{404 option} N·m
(149.1{298.2} ft-lbs)

PUMA TW/TS 2100 series

127{143 option} N·m
(93.7{105.5} ft-lbs)

PUMA TW2600B series

622 N·m
(459.0 ft-lbs)



Turret

Rotating of the turret is controlled by servo motor for rapid and accurate selection of tools.
The M model is fitted with Doosan's unique BMT turret to provide superior performance for milling operations.

2-axis Turret_ PUMA TW/TS series

No. of tool posts (PUMA TW2100/TS2100)

8 + 8 ea
{12 + 12 option}

No. of tool posts (PUMA TW/TS2600)

10 + 10 ea
{12 + 12 option}

3-axis Turret_ PUMA TW/TS series

No. of tool posts

10 + 10 ea

Cutting Performance

PUMA TW/TS series offers the greatest cutting performance of the class with max. torque of 404 N·m (298.2 ft-lbs).

PUMA TW2600 (202 N·m (149.1 ft-lbs)) (Material: SM45C)

Outer diameter turning

Outer diameter turning	Rough	Finish
Cutting speed (m/min (ipm))	210 (8267.7)	200 (7874.0)
Feed (mm/rev (ipr))	0.55 (0.0)	0.1 (0.0)
Spindle speed (r/min)	875	920
Cutting depth (mm (inch))	4.6 (0.2)	0.2 (0.0)

Inner diameter turning

Inner diameter turning	Rough	Finish
Cutting speed (m/min (ipm))	280 (11023.6)	200 (7874.0)
Feed (mm/rev (ipr))	0.3 (0.0)	0.1 (0.0)
Spindle speed (r/min)	1393	1481
Cutting depth (mm (inch))	3 (0.1)	0.4 (0.0)
Tool length	4.0D	3.0D

Tapping

Tapping	
Tap size (mm (inch))	M20 x P2.5 (M0.8 x P0.1)
Cutting speed (m/min (ipm))	10 / 20 (393.7 / 787.4)
Spindle speed (r/min)	159 / 318

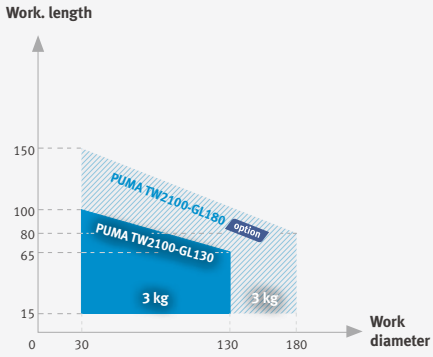
* The results, indicated in this catalogue are provides as example. They may not be obtained due to differences in cutting conditions and environmental conditions during measurement.

High Speed Gantry Loader

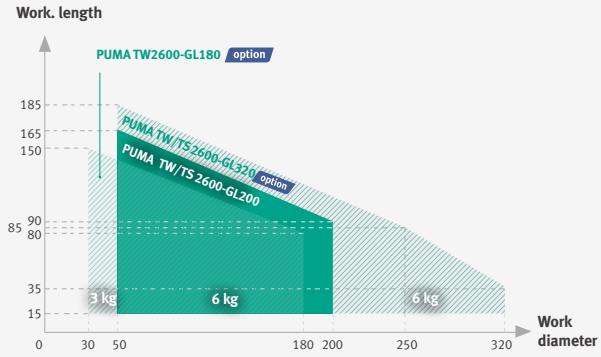
The 3-axis, servo-driven, high-speed gantry loader of the PUMA TW series model offers minimized work loading/unloading time and maximized productivity.

DOOSAN provides various type of gantry loader option to fit the customer's requirement.

PUMA TW/TS 2100-GL



PUMA TW/TS2600-GL



● Standard ○ Optional

Max. Handling diameter	PUMA TW/TS 2100-GL130	PUMA TW/TS 2100-GL180	PUMA TW/TS2600-GL180	PUMA TW/TS2600-GL200	PUMA TW/TS2600-GL320
Ø130 x 65mm 3.0kg/ea	●				
Ø180 x 80mm 3.0kg/ea		○	○		
Ø200 x 90mm 6.0kg/ea				●	
Ø320 x 35mm 6.0kg/ea					○

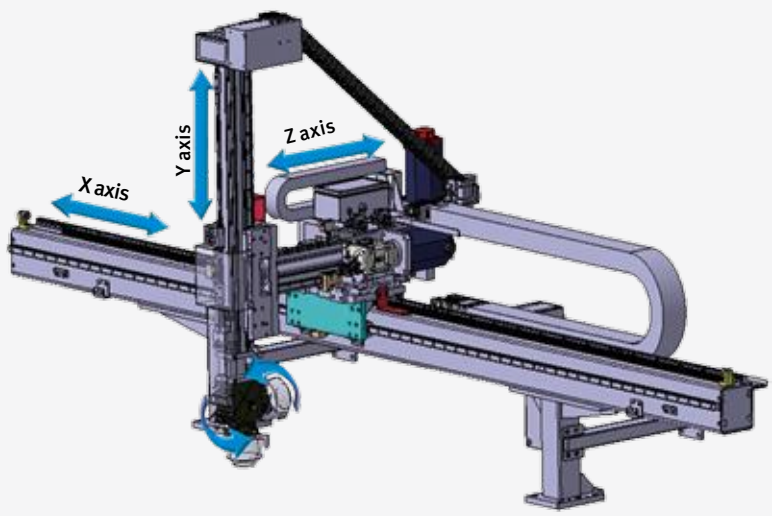
Gantry loader handling time (Enter → Change Work → Exit)

PUMA TW/TS 2100-GL

5.7 s

PUMA TW/TS2600-GL

7.9 s



Description		Unit	PUMA TW2100/M-GL	PUMA TW2600/M-GL	PUMA TS2600-GL
Rapid traverse	X axis	m/min (ipm)	210 (8267.7)	150 (5905.5)	150 (5905.5)
	Y axis	m/min (ipm)	180 (7086.6)	130 (5118.1)	130 (5118.1)
	Z axis	m/min (ipm)	55 (2165.4)	50 (1968.5)	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)	1495/1495/2677 (58.9 / 58.9 / 105.4)
	Y axis	mm (inch)	560 (22.0)(GL130), 610 (24.0) (GL180)	710 (28.0)	710 (28.0)
	Z axis	mm (inch)	200 (7.9)	270 (10.6)	270 (10.6)

High Speed Gantry Loader

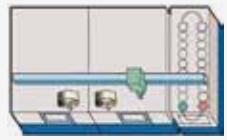
Gantry and stocker types

● Loading position
● Unloading position

A-1 type

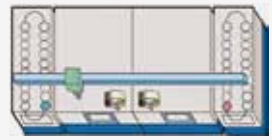
Work in/out and stocker are at the left side of the gantry

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

* Salesperson inquiry required for specific configuration of Gantry and stocker.

Twin Gantry loader option

Twin gantry loader use double loader for pikcing up from opposite side,so that, the time for gantry moving can be decreased.

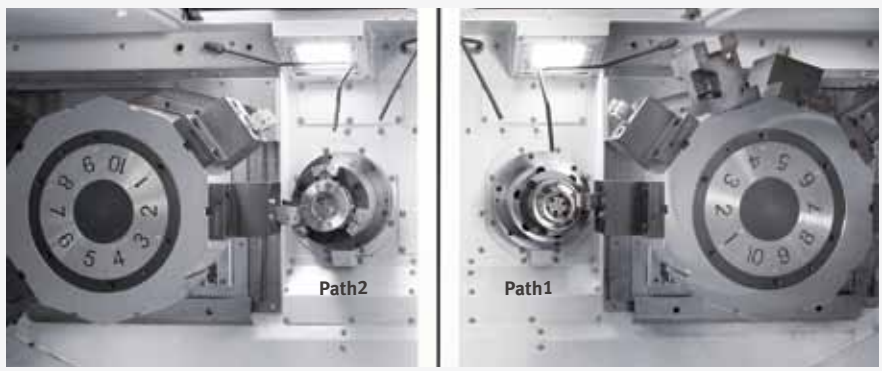
Extended gantry loader

Provides an extended type of stroke for the X,Y and Z axes. (Salesperson inquiry required)

Separate type option

Completely separate the left and right bed and gantry loader to minimize machining roughness without reducing productivity. This is applicable when rough machining is required on one side and a finish machining is required on the other side. (Salesperson inquiry required)

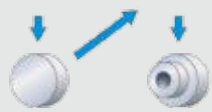
Applications



Work concept example 1

Simultaneous machining of same parts at left/right sides

Work concept example 2



Simultaneous machining of two sequential processes of a same part

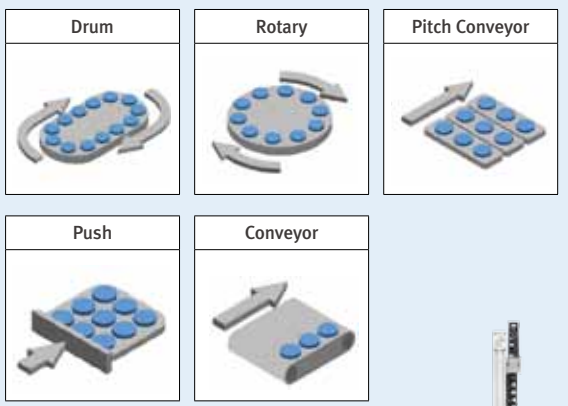
Work concept example 3

Simultaneous machining of different works

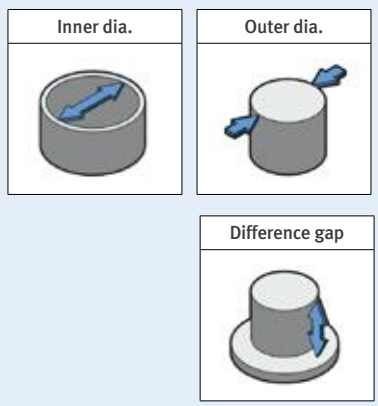
Improve customer's convenience by providing a variety of standard / modular peripherals equipments.

Standardization of variety option	Price competitiveness	Short delivery lead time	Quality stability	Improving convenience for operating
Modular system with **26 types** of stocker / measurement	Reduce costs approximately **15%** than previous order	Proposal **80%** faster delivery time and quick maintenance	Quality assurance through standardization	Provide PLC control and motion control

Stocker



Measurement



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

1 Gantry type
- A1
- A2
- A3

2-1 Stocker type
- Rotary Track
- Rotary Round
- Conveyor Pitch
- Push type
- Conveyor Plate

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

Modular Peripheral equipment

		Stoker (5 Type)												Measurement (3 Type)					
		Drum				Rotary			Pitch Conveyor		Push		Conveyor	Inner dia.		Outer dia.		Difference gap	
Image																			
Description		· Convenience of enough space to stack work piece · Wide coverage of maximum load capacity				· Minimize installation space · Superior accuracy of loading / unloading position			· Shaft type and asymmetric square shape can be loaded in various shapes.		· No separate feeder required		· Can be used to transfer between each processes	· Data back-up function enables to check dimension status and history · Insert automatic offset function for machining dimension stability · Provide quality stability and cost effectiveness through modularization					
Station	Station	8	10	12	14	6	8	10	14 Pitch		30 Stock	50 Stock	7 Stock	Button	Touch	Button	Touch	Button	Touch
									2row (Max100)	3row (Max100)	2row (Max100)	3row (Max100)							
	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 (inch)	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					
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 (inch)	50~100 (2.0~3.9)				50~125 (2.0~4.9)	125~200 (4.9~7.9)
Measurement	Inner diament	Button	50~200 (2.0~7.9)	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 Doosan Machine Tools sales to discuss more detail consultation regarding material shape.

Standard / Optional Specifications

Various optional features are available for customer-specific work environments.

● Standard ○ Optional X N/A

No.	Description	Features	PUMA TW2100/M TS2100/M	PUMA TW2100/M-GL TS2100/M-GL	PUMA TW2600/M TS2600/M TW 2600B/M	PUMA TW2600/M-GL TS2600/M-GL TW2600B/M-GL
1	Chuck	8 inch	○	○	○	○
2		10 inch	○	○	○	○
		12 inch	x	x	○	○
3		Chuck excluded	●	●	●	●
4	Turret	8 station	● [2 axis]	● [2 axis]	x	x
5		10 station	● [3 axis]	● [3 axis]	●	●
6	Coolant Pump	1.5 bar	●	●	●	●
7		4.5 bar	○	○	○	○
8		7 bar	○	○	○	○
9	Coolant System Options	Oil Skimmer (Belt-type)	○	○	○	○
10		Flushing Coolant	○	○	○	○
11		Through-spindle Coolant	○	○	○	○
12		Coolant Pressure Switch	○	○	○	○
13		Coolant level switch : Sensing level - Low / High**	○	○	○	○
14	Chucking Option	Chuck Clamp Confirmation	○	○	○	○
15	Rear Chip Conveyor	Hinged Belt Type	○	○	○	○
16		Magnetic Scrapper Type (for castings)	○	○	○	○
17		Screw Type	○	○	○	○
18	Chip Bucket	Folklift 300L	○	○	○	○
19		Rotation 300L	○	○	○	○
20	Chip Disposal Options	Air Blower	○	○	○	○
21		Chuck Coolant	○	○	○	○
22		Air Gun	○	○	○	○
23		Coolant Gun	○	○	○	○
24		Mist Collector_Ready	○	○	○	○
25		Mist Collector Soluble	○	○	○	○
26	Measurement & Automation	Tool Setter (Removable)	○	○	○	○
27		Work Position Confirmation Device_Ready	○	○	○	○
28		Work Position Confirmation Device_TACO	○	○	○	○
29		Auto Door	○	○	○	○
30		Work & Tool Counter	○	○	○	○
31	Gantry Loader	A1 Type Loader	-	●	-	●
32		A2 Type Loader	-	○	-	○
33		A3 Type Loader	-	○	-	○
34		Stocker (A1/A2/A3)	-	○	-	○
35		Turn over Unit	-	●	-	●
36		Gripper Type	-	○	-	○
37		Work Inspection Chute	-	○	-	○
38	Optional Accessories	Tool Load Monitoring System	○	○	○	○
39		Tail stock	○	○	○	○
40		Linear Scale (X/Z-axis)	○	○	○	○
41		Air Conditioner	○	○	○	○
42		Signal Tower	○	○	○	○
43		Electric Cabinet Lamp	○	○	○	○
44		Auto Power Cut-off	○	○	○	○
45		Quick change tooling(CAPTO)	○	○	○	○

* Please contact DOOSAN to select detail specifications. ** Special Quotation.

Peripheral equipments

Chip conveyor option 14~16

Long

Short

Needle

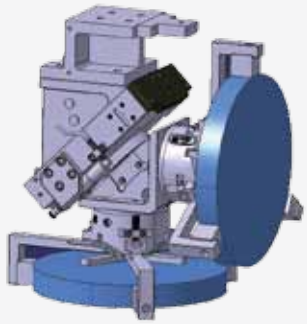
Sludge

Chip conveyor type \ Material		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	○	○	○	○	–	–	–
Drum filter type	Hinged type	○	△	X	△	X	○	△	X
	Scrapper	X	○	△	○	△	X	○	△

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

Special response to the demands for special turning diameter works

option



* Delivery terms will be advised on request.

Chip bucket option 17~18

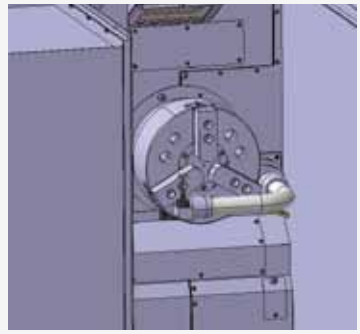
Capacity **300L**
(79.3galon)

Quick change CAPTO option 45

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

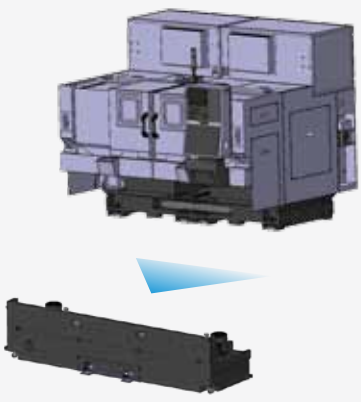
Tool setter option 25

The tool setter facilitates tool setting, and fast and precise length compensation of abraded tools.



Coolant tank

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



Independent gantry operation panel

Standard, independent gantry loader operation panel is provided for user convenience.

Work counter option 29

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

CNC

CNC systems optimized for DOOSAN's machine tools maximize productivity.

User-friendly operation panel

The operation panel of new design enhances operating convenience with common buttons and layout, and uses Qwerty type keyboard for easy and fast operation.

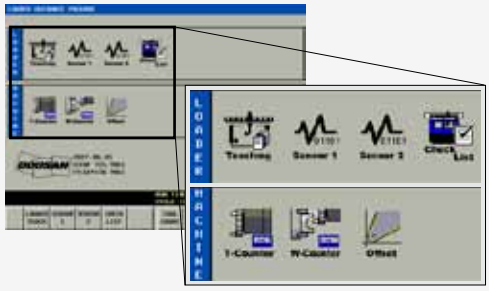
10.4" display

- **USB & OCMCIA card (standard)**
- **QWERTY keyboard**
- **Buttons can be easily added for additional options**
- **Operation panel newly designed for greater user convenience**

Easy Operation Package

Easy operating screen offed that operators can easily operate / set frequently used functions.

Main screen



Loader teaching

Help setting position of the travel axis of the loader.
(Up to 5 different positions can be set and loaded.)

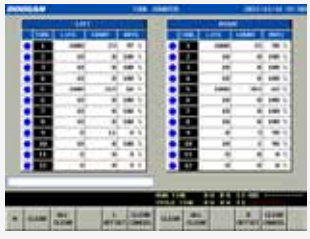
Real time check sensor of loader

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

Check list

Operator can check at once via displays status information of the equipment and loader.

Tool counter



The tool life management screen displays the tool usage and the ratio.

Work counter

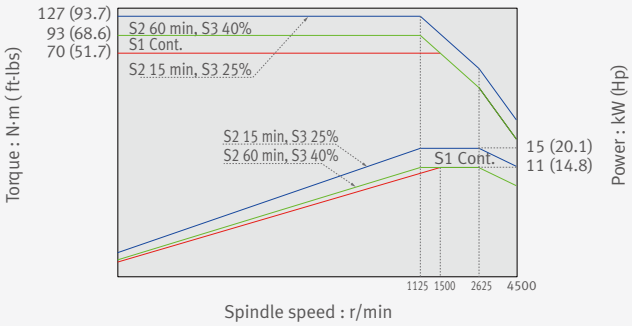
It is easy to manage production quantity by work counter screen. Also it is easy to control quality inspection by setting the material discharge cycle.

Spindle Power – Torque Diagram

Spindle

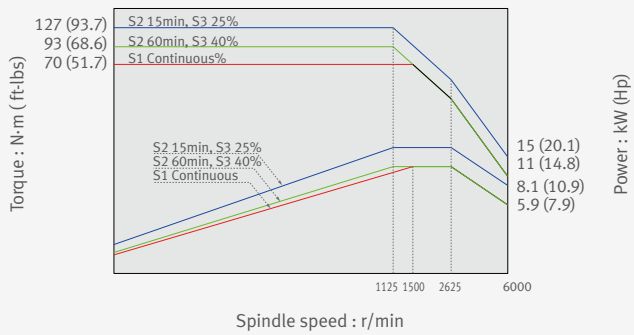
PUMA TW2100/TW2100-GL /TS2100/TS2100-GL series

- Spindle speed : 4500 r/min
- Spindle motor power : 15/11 kW (20.1/14.8 Hp)
- Max. spindle motor torque : 127 N·m (93.7 ft-lbs)



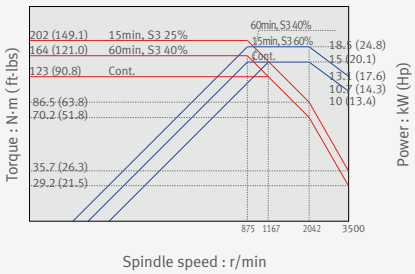
PUMA TW2100/TW2100-GL/TS2100/TS2100-GL series option

- Spindle speed : 6000 r/min
- Spindle motor power : 15/11 kW (20.1/14.8 Hp)
- Max. spindle motor torque : 127 N·m (93.7 ft-lbs)



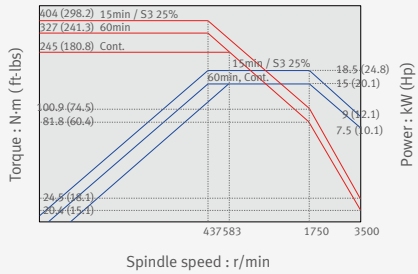
PUMA TW2600/TW2600-GL/TS2600/TS2600-GL series

- Spindle speed : 3500 r/min
- Spindle motor power : 18.5/15 kW (24.8/20.1 Hp)
- Max. spindle motor torque : 202 N·m (149.1 ft-lbs)



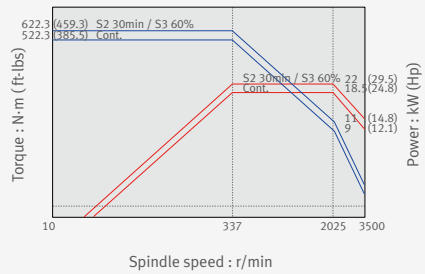
PUMA TW2600/GL (High Torque) option

- Spindle speed : 3500 r/min
- Spindle motor power : 18.5/15 kW (24.8/20.1 Hp)
- Max. spindle motor torque : 404 N·m (298.2 ft-lbs)



PUMA TW2600B/TW2600B-GL series

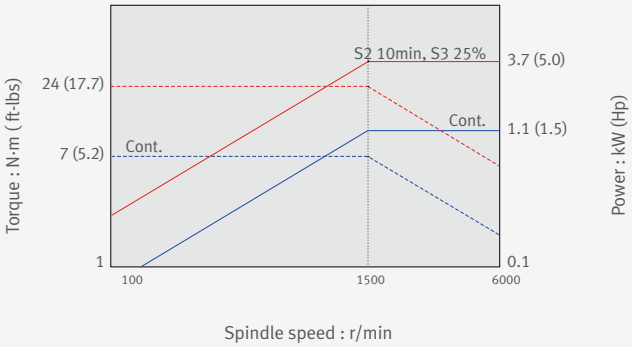
- Spindle speed : 3500 r/min
- Spindle motor power : 22/18.5 kW (29.5/24.8 Hp)
- Max. spindle motor torque : 622 N·m (459.0 ft-lbs)



Rotary Tool

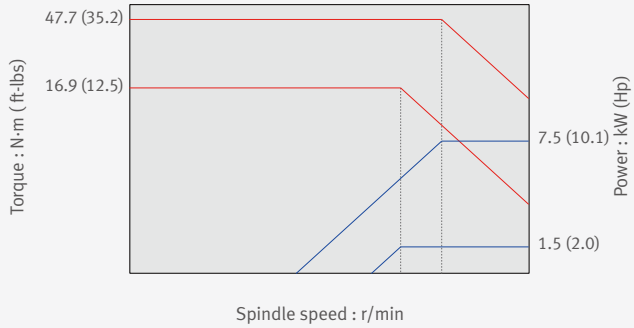
PUMA TW2100/TW2100-GL /TS2100/TS2100-GL series

- Spindle speed : 6000 r/min
- Spindle motor power : 3.7/1.1 kW (5.0/1.5 Hp)
- Max. spindle motor torque : 24 N·m (17.7 ft-lbs)



PUMA TW2600/TW2600-GL/TS2600/TS2600-GL series

- Spindle speed : 5000 r/min
- Spindle motor power : 7.5/1.5 kW (10.1/2.0 Hp)
- Max. spindle motor torque : 47.7 N·m (35.2 ft-lbs)

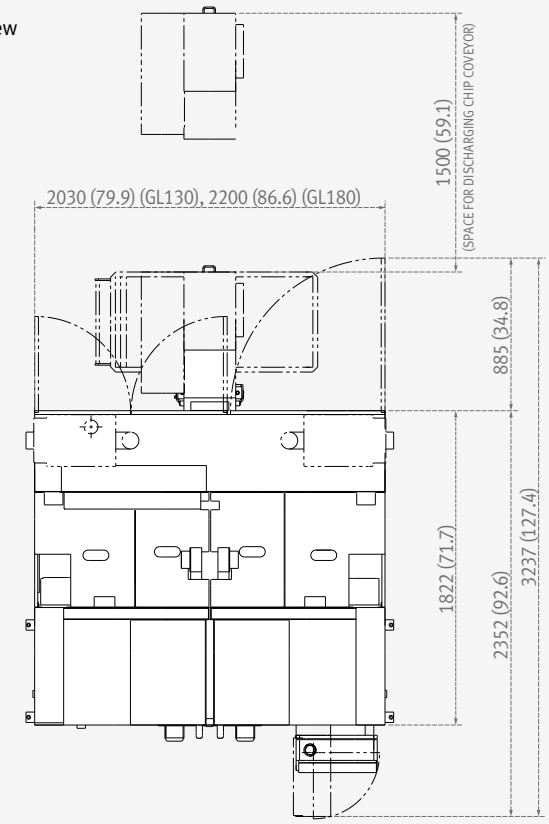


External Dimensions

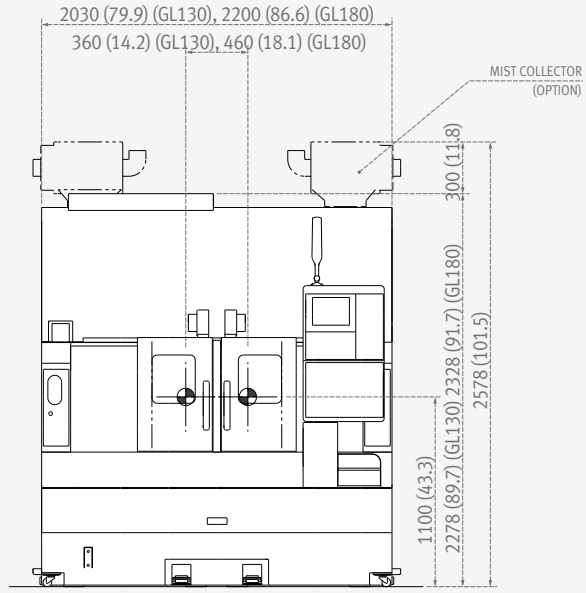
PUMA TW2100

Unit: mm (inch)

Top View



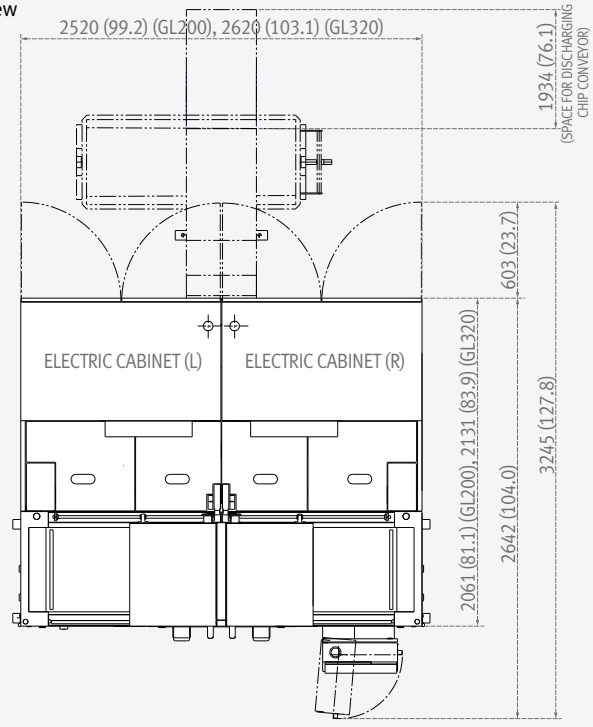
Front View



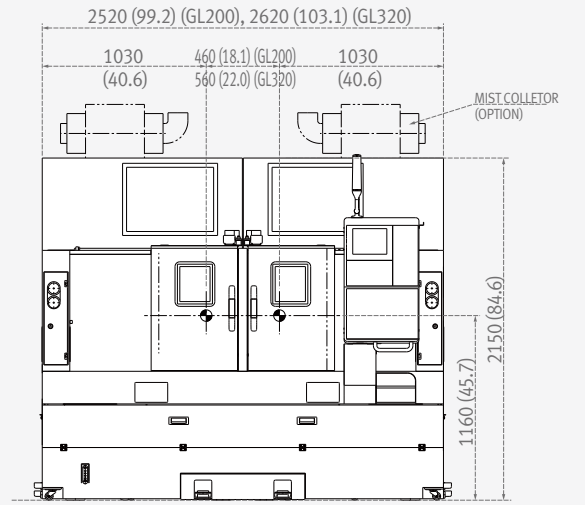
PUMA TW2600/M (TW2600B/MB)

Unit: mm (inch)

Top View



Front View



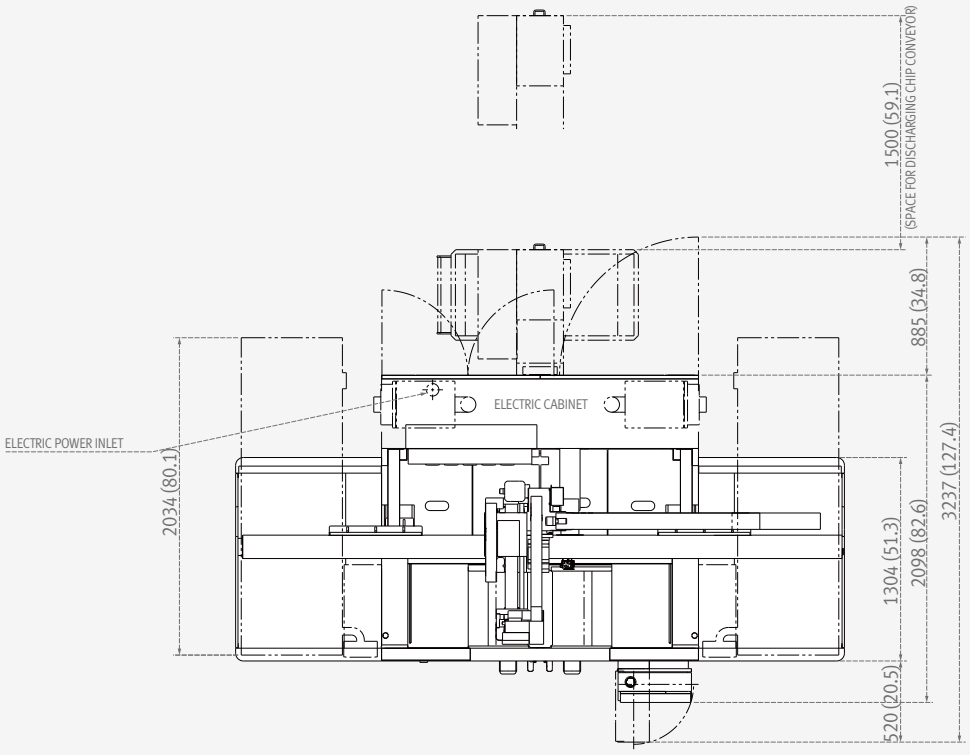
* Some peripheral equipment can be placed in other places

External Dimensions

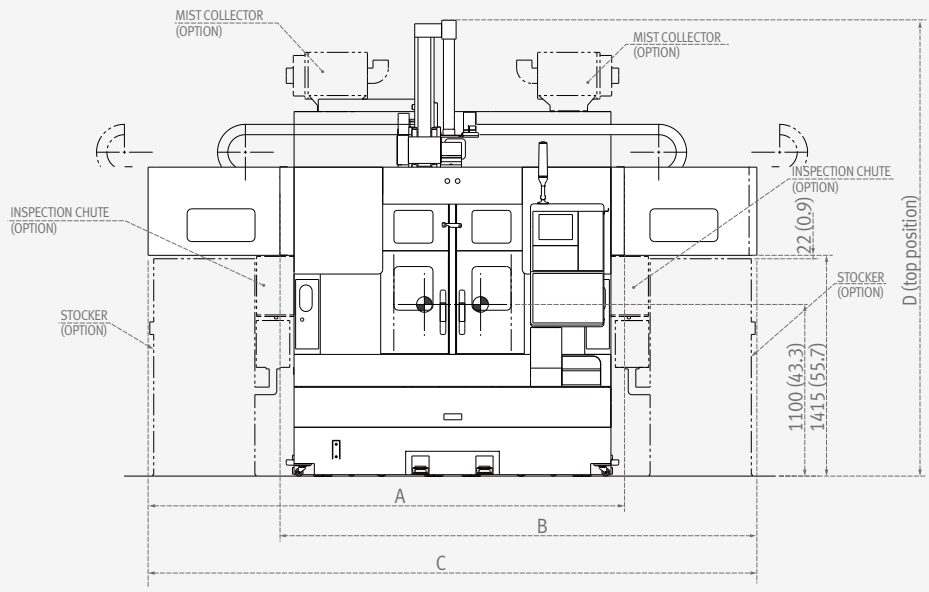
PUMA TW2100-GL series

Unit: mm (inch)

Top View



Front View



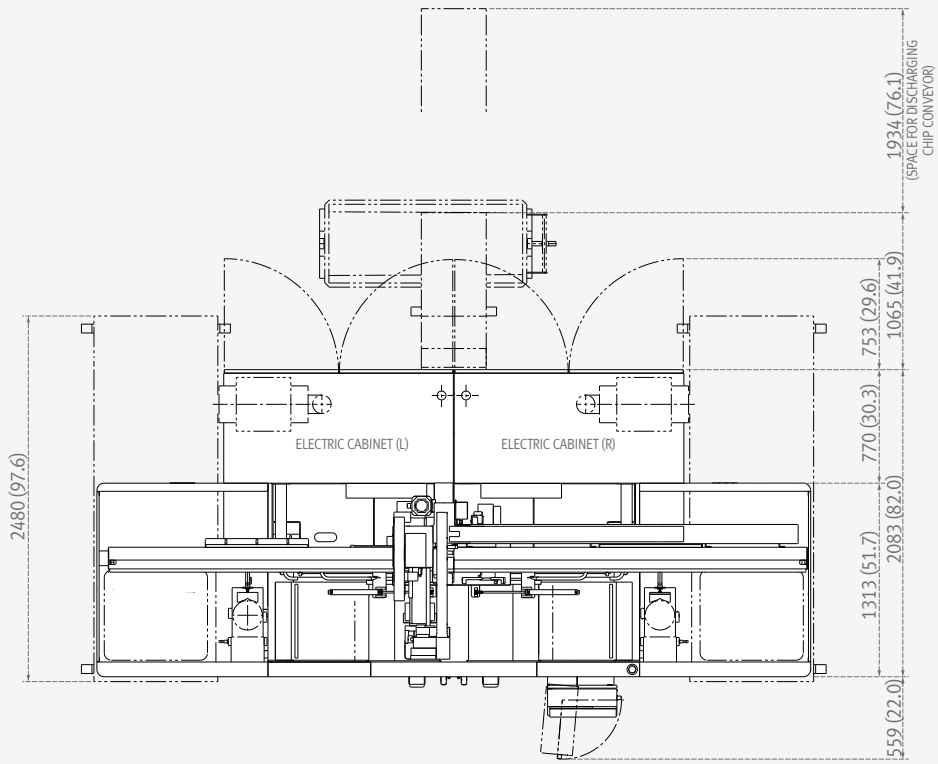
	A	B	C	D
PUMA TW2100-GL130 (A1 type)	3295 (129.7)	-	-	2921 (115.0)
PUMA TW2100-GL130 (A2 type)	-	3295 (129.7)	-	2921 (115.0)
PUMA TW2100-GL130 (A3 type)	-	-	3900 (153.5)	2921 (115.0)
PUMA TW2100-GL180 (A1 type)	3465 (136.4)	-	-	2971 (117.0)
PUMA TW2100-GL180 (A2 type)	-	3465 (136.4)	-	2971 (117.0)
PUMA TW2100-GL180 (A3 type)	-	-	4000 (157.5)	2971 (117.0)

* Some peripheral equipment can be placed in other places

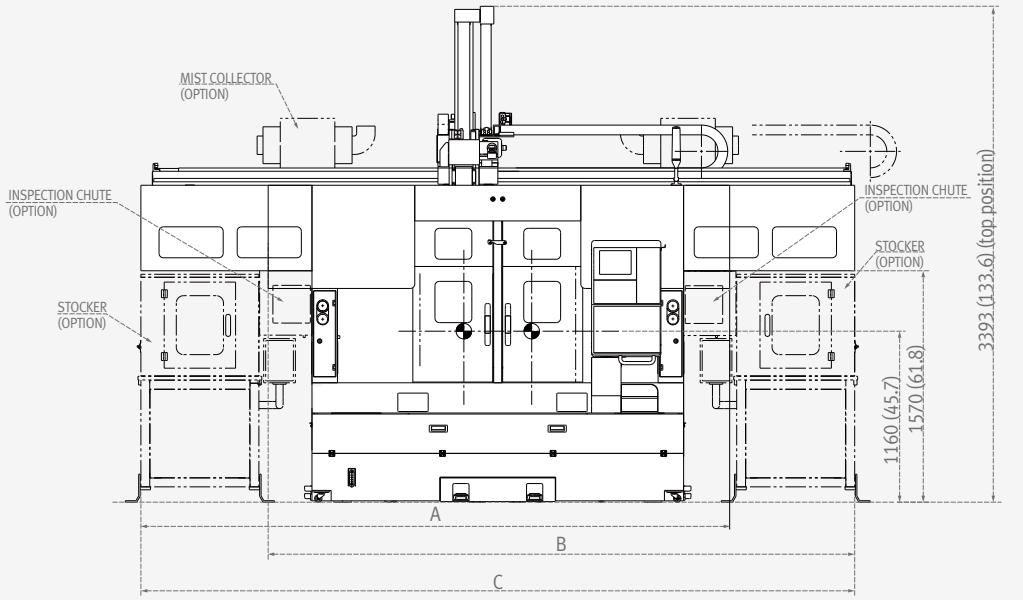
PUMA TW2600-GL series (TW2600B/MB)

Unit: mm (inch)

Top View



Front View



	A	B	C
PUMA TW2600-GL200 (A1 type)	3980 (156.7)	-	-
PUMA TW2600-GL200 (A2 type)	-	3980 (156.7)	-
PUMA TW2600-GL200 (A3 type)	-	-	4840 (190.6)
PUMA TW2600-GL320(A1 type)	4120 (162.2)	-	-
PUMA TW2600-GL320(A2 type)	-	4120 (162.2)	-
PUMA TW2600-GL320(A3 type)	-	-	4940 (194.5)

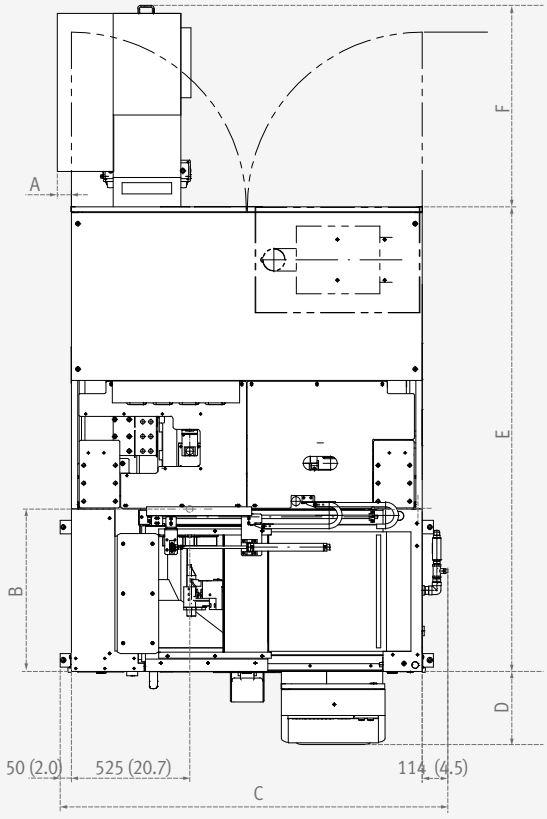
* Some peripheral equipment can be placed in other places

External Dimensions

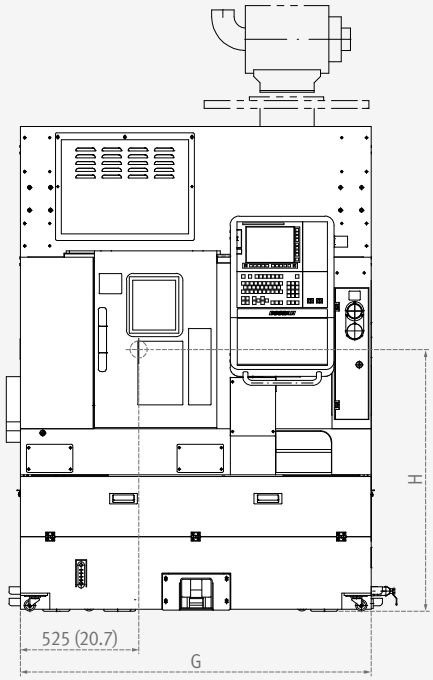
PUMA TS2100/TS2600

Unit: mm (inch)

Top View



Front View



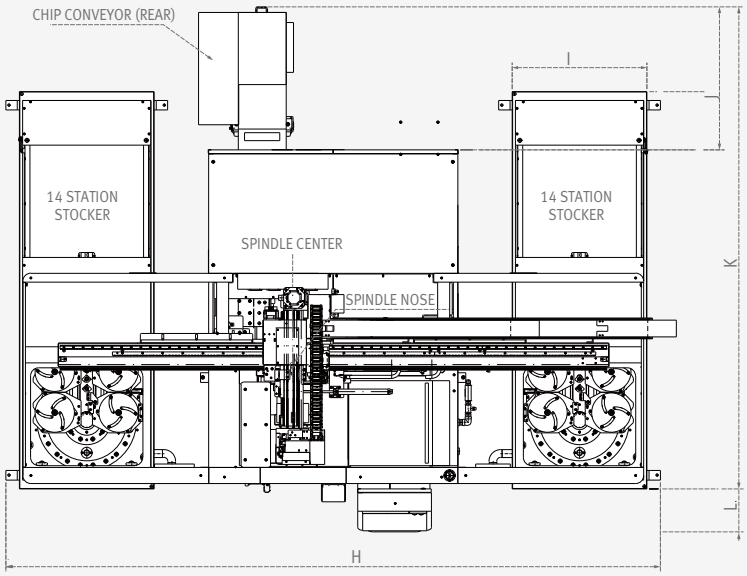
	A	B	C	D	E	F	G	H
TS 2100/M	52 (2.0)	681 (26.8)	1524 (60.0)	265.7 (10.5)	1833(72.2)	839 (33.0)	1360 (53.5)	1100 (43.3)
TS2600/M	62 (2.4)	720 (28.3)	1719 (67.7)	324.1 (12.8)	2061(81.1)	893.5(35.2)	1555 (61.2)	1160 (45.7)

* Some peripheral equipment can be placed in other places

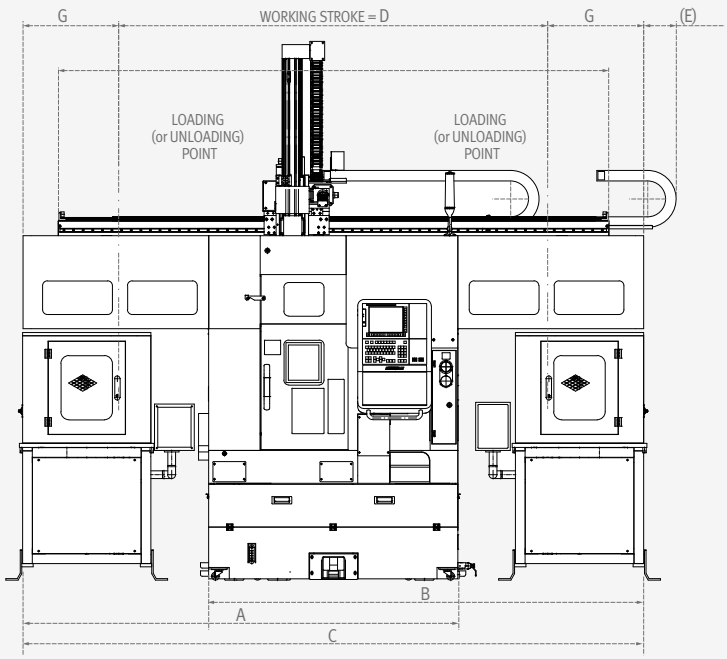
PUMA TS2100/TS2600-GL

Unit: mm (inch)

Top View



Front View



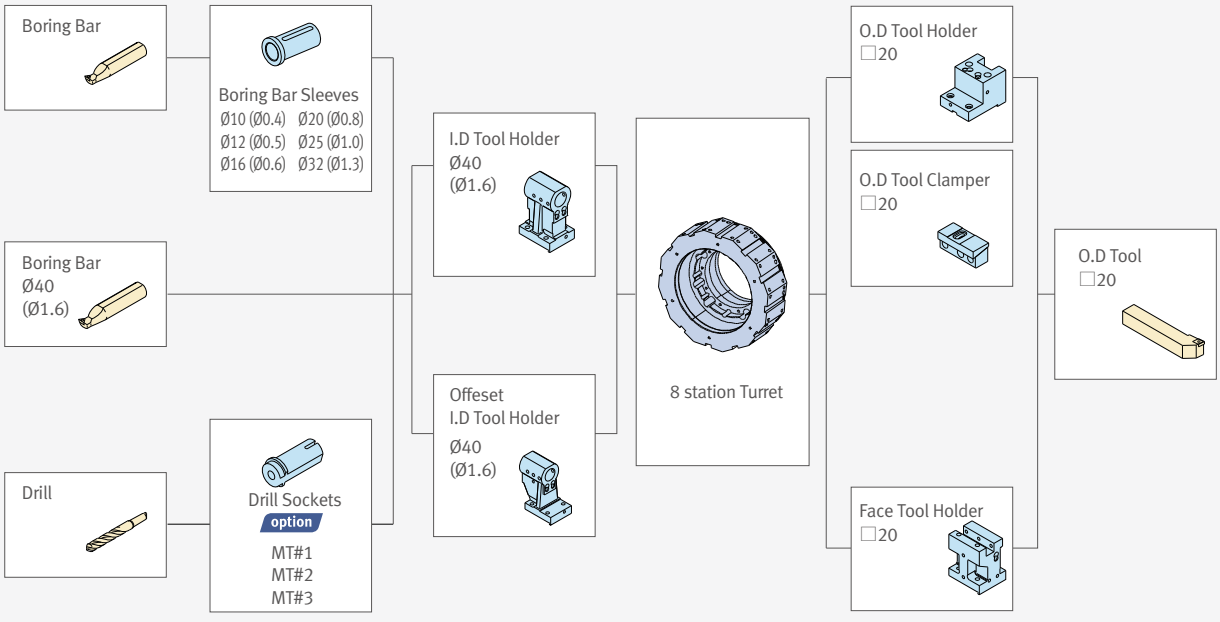
	Type	A	B	C	D	E	G	H	I	J	K	L
TS 2100/M	A1	2625 (103.3)	-	-	1235 (48.6)	-	-	-	-	-	-	-
	A2	-	2659 (104.7)	-	1579 (62.2)	407.5 (16.0)	-	-	-		-	-
	A3	-	-	3264 (128.5)	2274 (89.5)	267 (10.5)	495 (19.5)	3300 (129.9)	642 (25.3)	839 (33.0)	2672 (105.2)	265.7 (10.5)
TS2600/M	A1	3007 (118.4)	-	-	1535 (60.4)	-	-	-	-	-	-	-
	A2	-	2955 (116.3)	-	2040 (80.3)	-	-	-	-	-	-	-
	A3	-		3875 (152.6)	2677 (105.4)	203.5 (8.0)	599 (23.6)	4085 (160.8)	840 (33.1)	893.5 (35.2)	3010 (118.5)	269.1 (10.6)

* Some peripheral equipment can be placed in other places

Tooling System

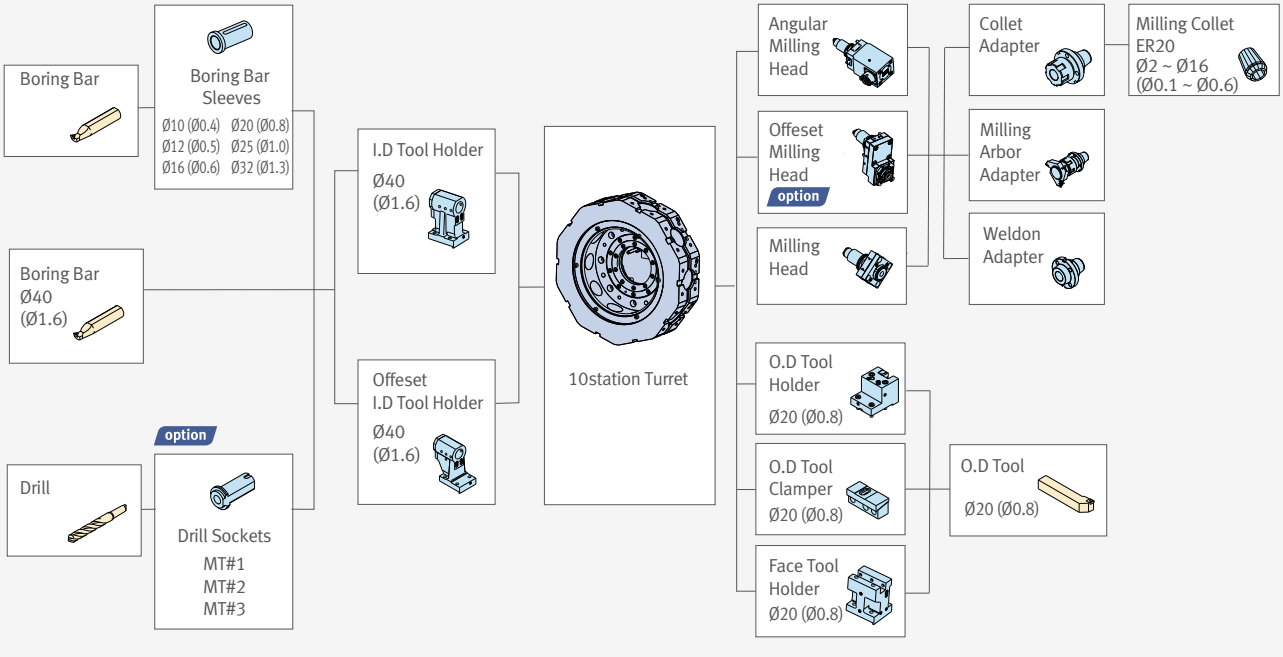
PUMA TW2100/2100-GL/TS2100/TS2100-GL

Unit: mm (inch)



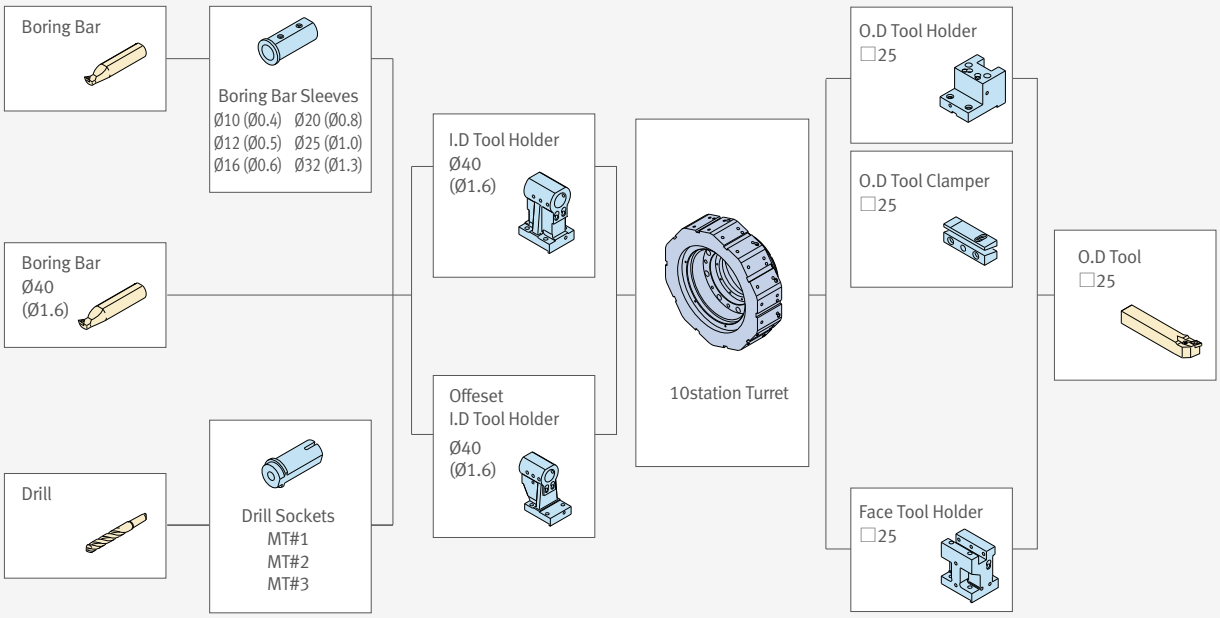
PUMA TW2100M/2100M-GL/TS2100M/TS2100M-GL

Unit: mm (inch)



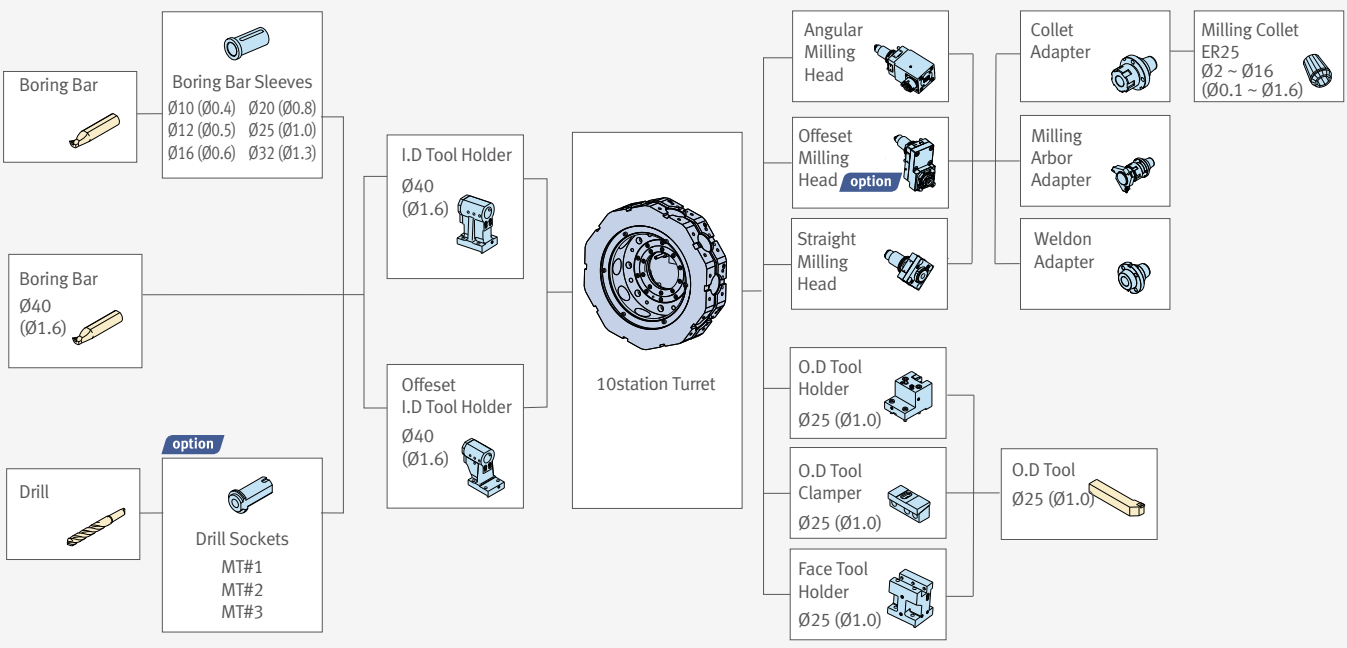
PUMA TW2600/TW2600-GL/TS2600/TS2600-GL

Unit: mm (inch)



PUMA TW2600M/TW2600M-GL/TS2600M/TS2600M-GL

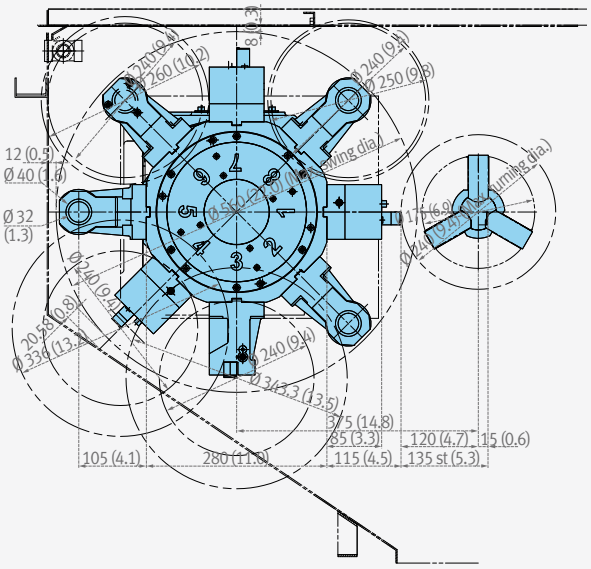
Unit: mm (inch)



Tool Interference Diagram

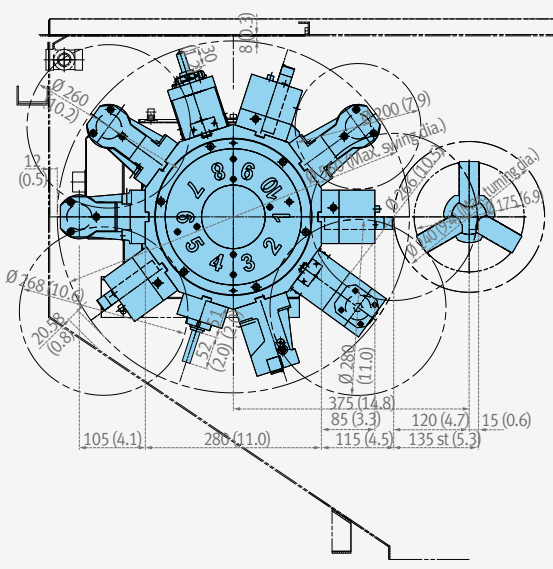
PUMA TW2100/2100-GL/ TS2100/TS2100-GL (2 axis, 8 station)

Unit: mm (inch)



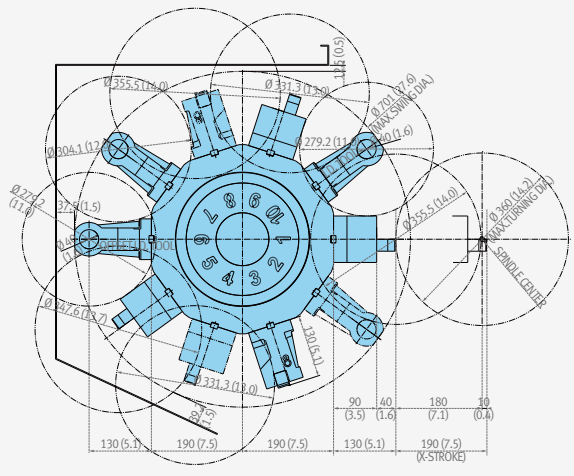
PUMA TW2100M/2100M-GL / TS2100M/TS2100M-GL (3 axis, 10 station)

Unit: mm (inch)



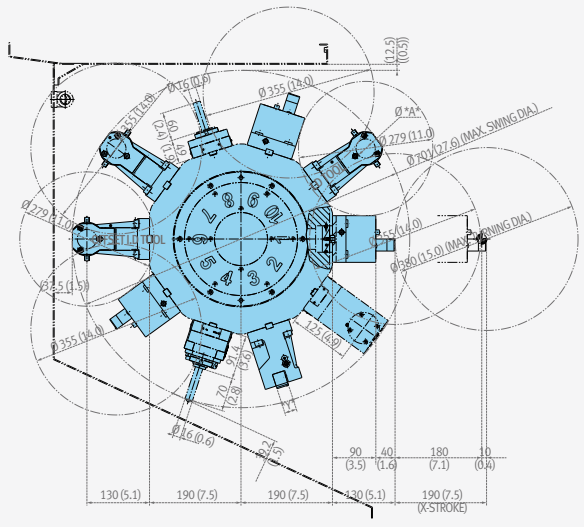
PUMA TW2600/TW2600-GL/TS2600/ TS2600-GL (2 axis, 10 station)

Unit: mm (inch)



PUMA TW2600M/TW2600M-GL/TS2600M/ TS2600M-GL (3 axis, 10 station)

Unit: mm (inch)

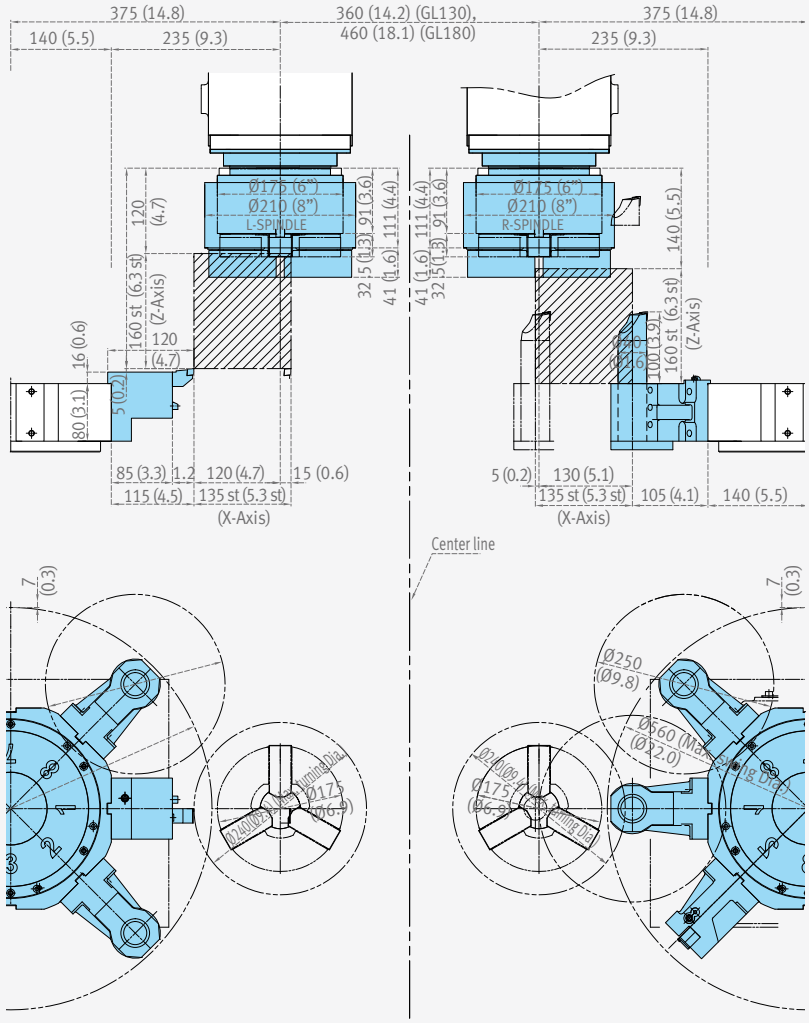


Working Range

PUMA TW2100/2100-GL/TS2100/TS2100-GL

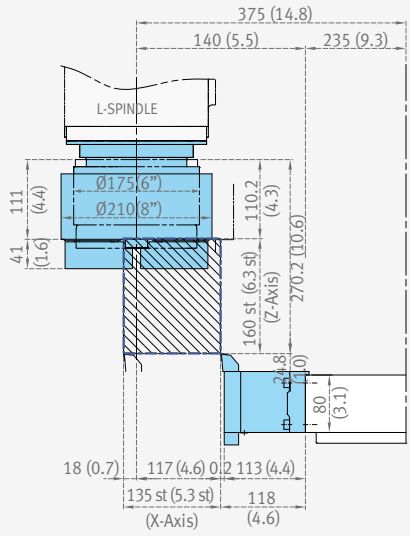
Unit: mm (inch)

O.D Holder

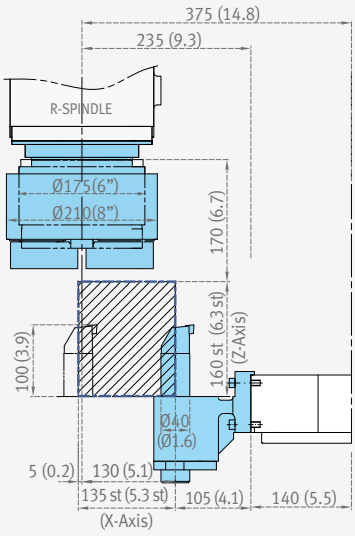


I.D Holder

Face Tool Holder



Offset I.D Holder

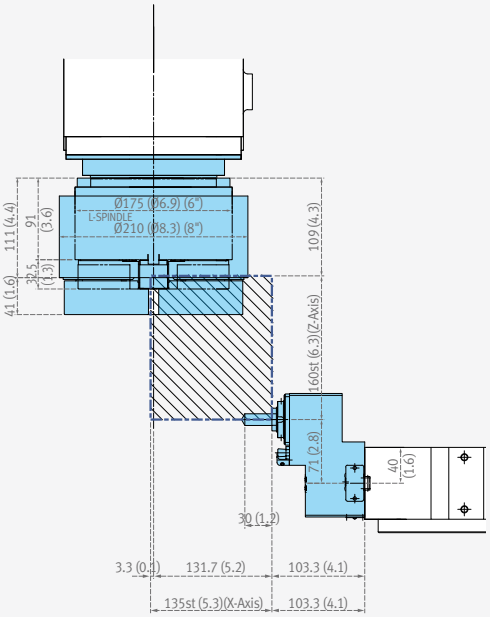


Working Range

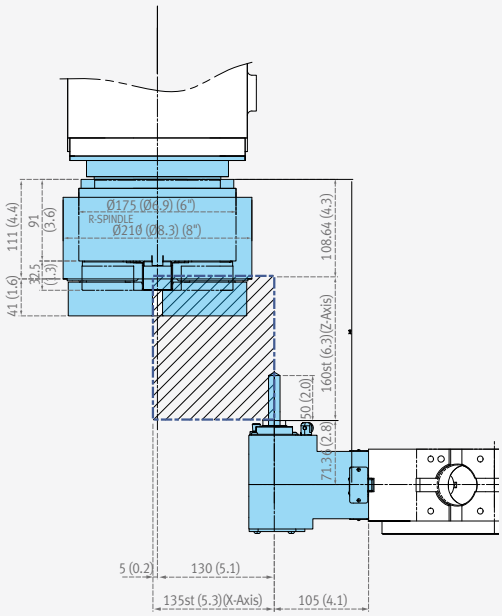
PUMA TW2100M/2100M-GL/TS2100M/TS2100M-GL

Unit: mm (inch)

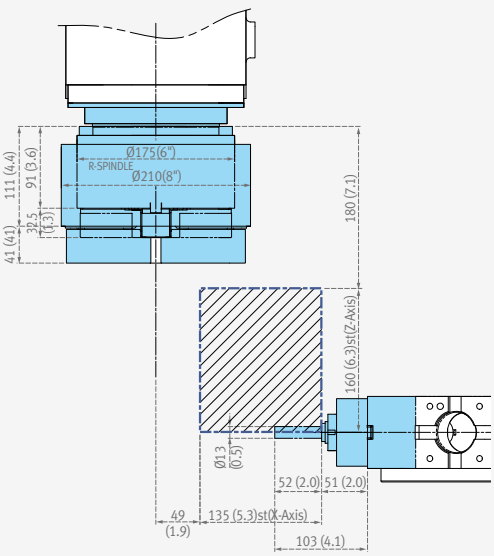
Offset Milling Head option



Angular Milling Head



Straight Milling Holder

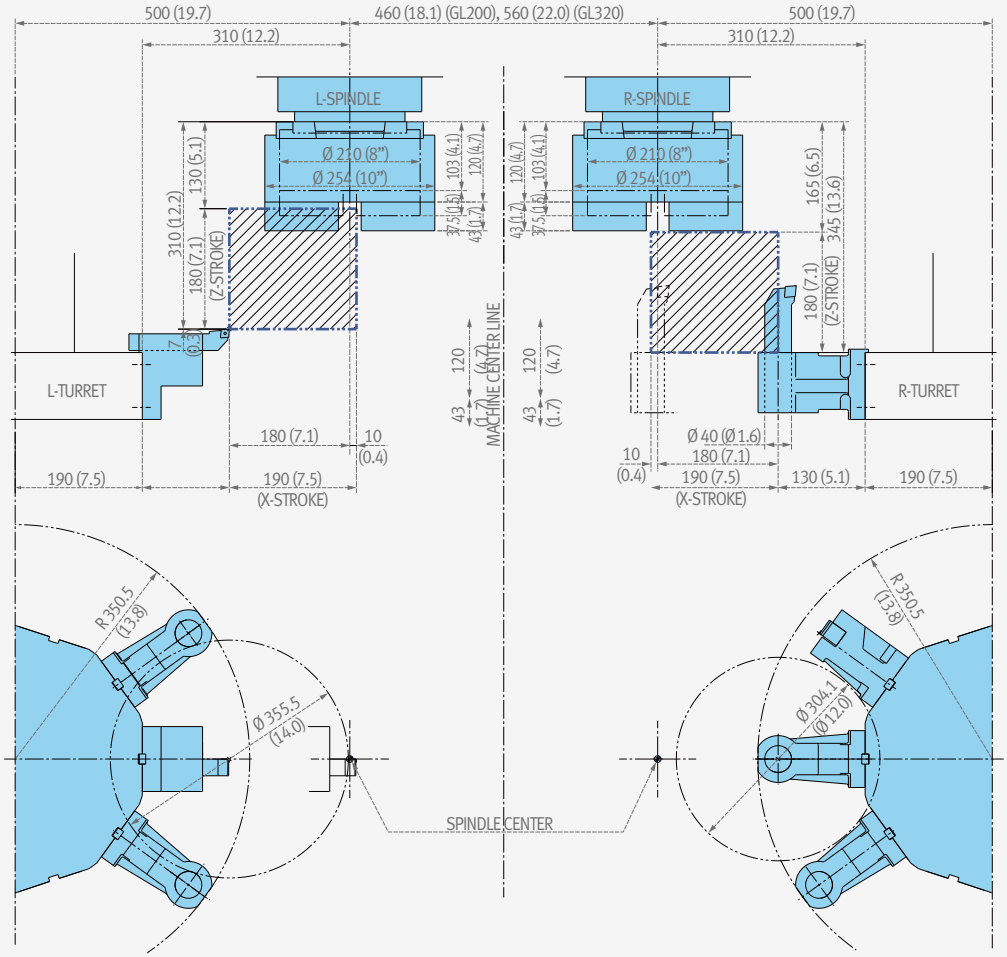


PUMA TW2600/TW2600-GL/TS2600/TS2600-GL

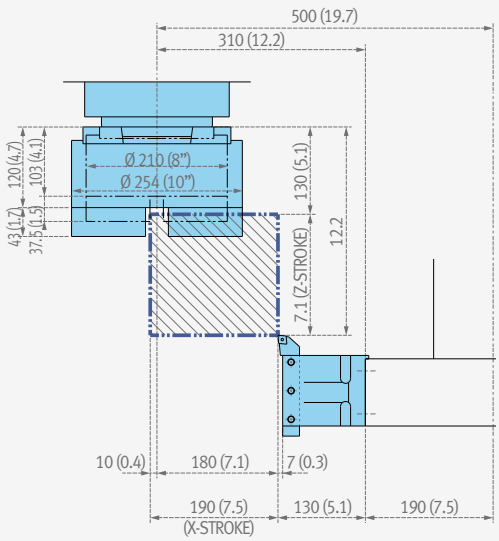
Unit: mm (inch)

O.D Holder

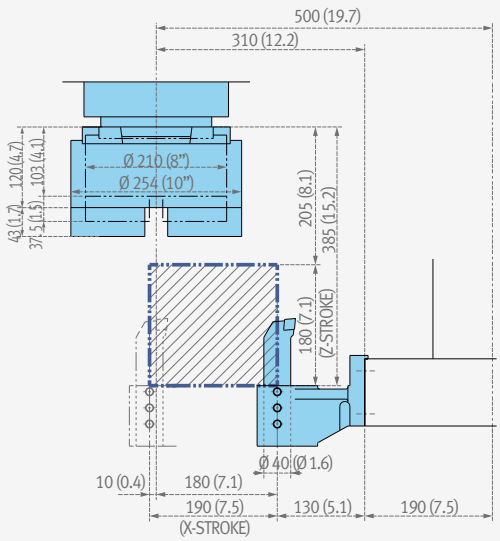
I.D Holder



Face Tool Holder



Offset I.D Holder

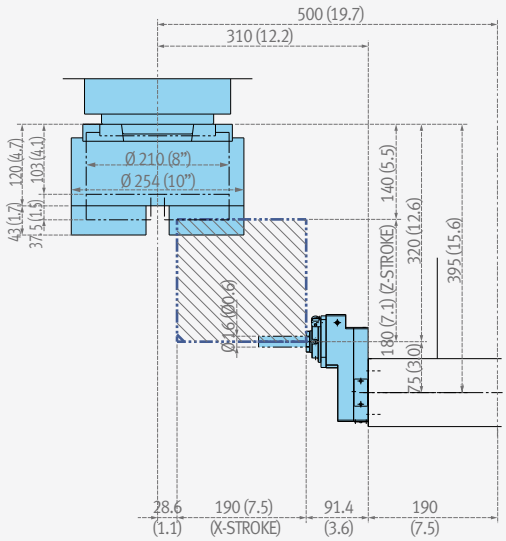


Working Range

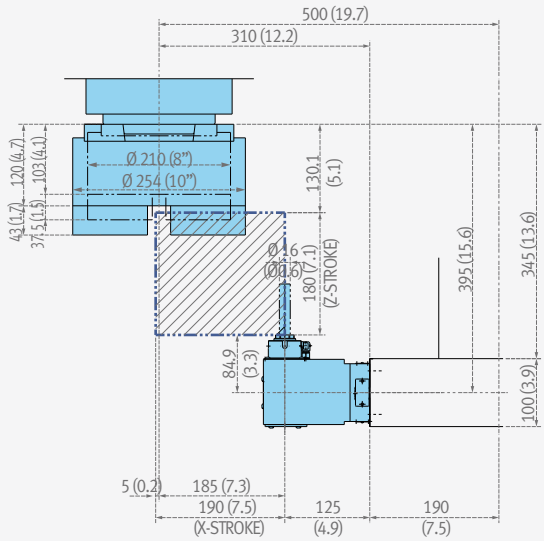
PUMA TW2600M/TW2600M-GL/TS2600M/TS2600M-GL

Unit: mm (inch)

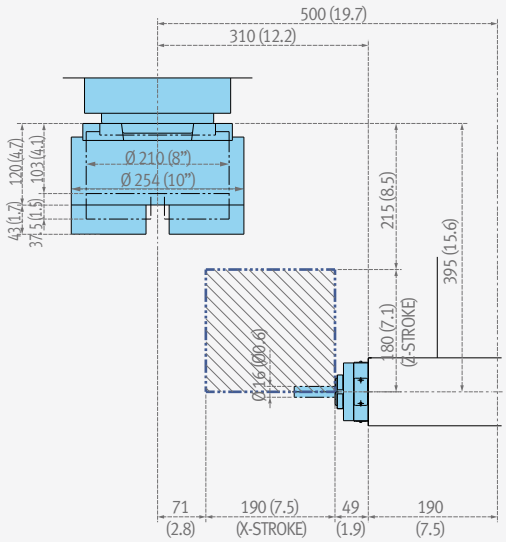
Offset Milling Holder option



Angular Milling Holder



Straight Milling Holder



Machine Specifications

PUMA
TW/ TS series

Item			Unit	PUMA TW2100 [M]	PUMA TW2100-GL [M-GL]	PUMA TS2100 [M]	PUMA TS2100-GL [M-GL]	PUMA TW2600 [M]	PUMA TW2600-GL [M-GL]	PUMA TW2600B [MB] [GL]	PUMA TS2600 [M]	PUMA TS2600-GL [M-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)	Ø240 (Ø9.4)		Ø360 (Ø14.2)	Ø200 / Ø50 (Ø7.9 / Ø2.0) (GL200) Ø320 / Ø50 (Ø12.6 / Ø2.0) (GL320)	Ø360 (Ø14.2)		Ø200 / Ø50 (Ø7.9 / Ø2.0) (GL200) Ø320 / Ø50 (Ø12.6 / Ø2.0) (GL320)
	Max. turning length		mm (inch)	128 (5.0)	65 / 100 (2.6 / 3.9) (GL130) 80 / 150 (3.1 / 5.9) (GL180)	128 (5.0)		170 (6.7)	90 / 165 (3.5 / 6.5) (GL200) 35 / 185 (1.4 / 7.3) (GL320)	170 (6.7)		90 / 165 (3.5 / 6.5) (GL200) 35 / 185 (1.4 / 7.3) (GL320)
	Chuck size	Standard	mm (inch)	Ø210 (8")				Ø255 (10")		Ø304(12")	Ø255 (10")	
		Optional	mm (inch)	Ø210 (6")				Ø210 (8"), Ø305 (12")		-	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)				24 (944.9)		24 (944.9)		
		Z axis	m/min (ipm)	24 (944.9)				24 (944.9)		24 (944.9)		
Spindle	Max. spindle speed		r/min	4500 {6000}				3500		3500		
	Max. spindle power (15 min/cont.)		kW (Hp)	15/11 (20.1/14.8)				18.5/15 (24.8/20.1)		22/18.5 (29.5 /24.8)		18.5/15 (24.8/20.1)
	Max. spindle torque		N·m (ft-lbs)	127{143} (93.7)				202{404} (149.0{298.2})		622 (459.0)		202{404} (149.0{298.2})
	Distance between left-right spindle centers		mm (inch)	360 (14.2) (GL130), 460 (18.1) (GL180)		-		460 (18.1) (GL200), 560 (22.0) (GL320)		560 (22.0)		-
	Spindle nose			A2-5				A2-6		A2-8		A2-6
	Spindle bearing size (front face I/D)		mm (inch)	Ø90 (Ø3.5)				Ø110 (Ø4.3)		Ø130 (Ø5.1)		Ø110 (Ø4.3)
	Spindle hole through diameter		mm (inch)	Ø61 (Ø2.4)				Ø61 (Ø2.4)		Ø91 (Ø3.6)		Ø61 (Ø2.4)
Turret	No. of tool stations		ea	8+8 {12+12} [10+10]				10+10		10+10{12+12} [10+10]		10
	OD tool size			□ 20 (□ 0.8)				□ 25 (□ 1.0)		□ 25 (□ 1.0)		
	Max. boring bar size		mm (inch)	Ø40 (Ø1.6)				Ø40 (Ø1.6)		Ø40 (Ø1.6)		
	Turret Indexing time (1 station swivel)		sec	0.16				0.16		0.16		
Ratary tool	Max. spindle speed		r/min	[6000]				[5000]				
	Max. spindle torque		N·m (ft-lbs)	[23.5]				[47.7 (35.2)]				
	Tool holder Type			[BMT45P]				[BMT55P]				
Power	Power consumption		kVA	59.3 [61.5]	64.32 [66.52]	-	-	65.07 [69.47]	63.37 [72.77]	80.3	65.07 [69.47]	63.37 [72.77]
Dimensions	Length		mm (inch)	2030 (79.9) (GL130) 2200 (86.6) (GL180)	3900 (153.5) (GL130) 4000 (157.5) (GL180)	-	3263	2520 (99.2) (GL200) 2620 (103.1) (GL320)	4840 (190.6) (GL200)** 4940 (194.5) (GL320)**	2620 (103.1)	1555 (61.2)	3875 (152.6)
	Width*		mm (inch)	2098 (82.6)	2098 (82.6)	-	2101	2061 (81.1) (GL200) 2131 (83.9) (GL320)	2715 (106.9) (A3 type)	2131 (83.9)	2061 (81.1)	2715 (106.9)
	Height (Max. / Min.)		mm (inch)	2278 (89.7) (GL130) 2328 (91.7) (GL180)	2921 (115.0) (GL130) 2971 (117.0) (GL180)	-	2953	2150 (84.6)	3393 / 3160 (133.6 / 124.4)	2150 (84.6)		3393 / 3160 (133.6 / 124.4)
	Weight		kg (lb)	4650 (10251.3) (GL130) 4700 (10361.6) (GL180)	5200 (11463.9) (GL130)** 5250 (11574.1) (GL180)**	-	-	7200 (15873.0) (GL200) 7250 (15983.3) (GL320)	7730 (17041.5) (GL200)** 7780 (17151.7) (GL320)**	7250 (15983.3)	5000 (11023.0)	5835 / 5885 (12863.8 / 12974.0)
Control	CNC system			DOOSAN-FANUC i				DOOSAN-FANUC i				DOOSAN-FANUC i

* without chip conveyor ** Based on type A3 (stockers on the left/right)

CNC Specifications

DOOSAN FANUC i

● Standard ○ Optional X Not applicable

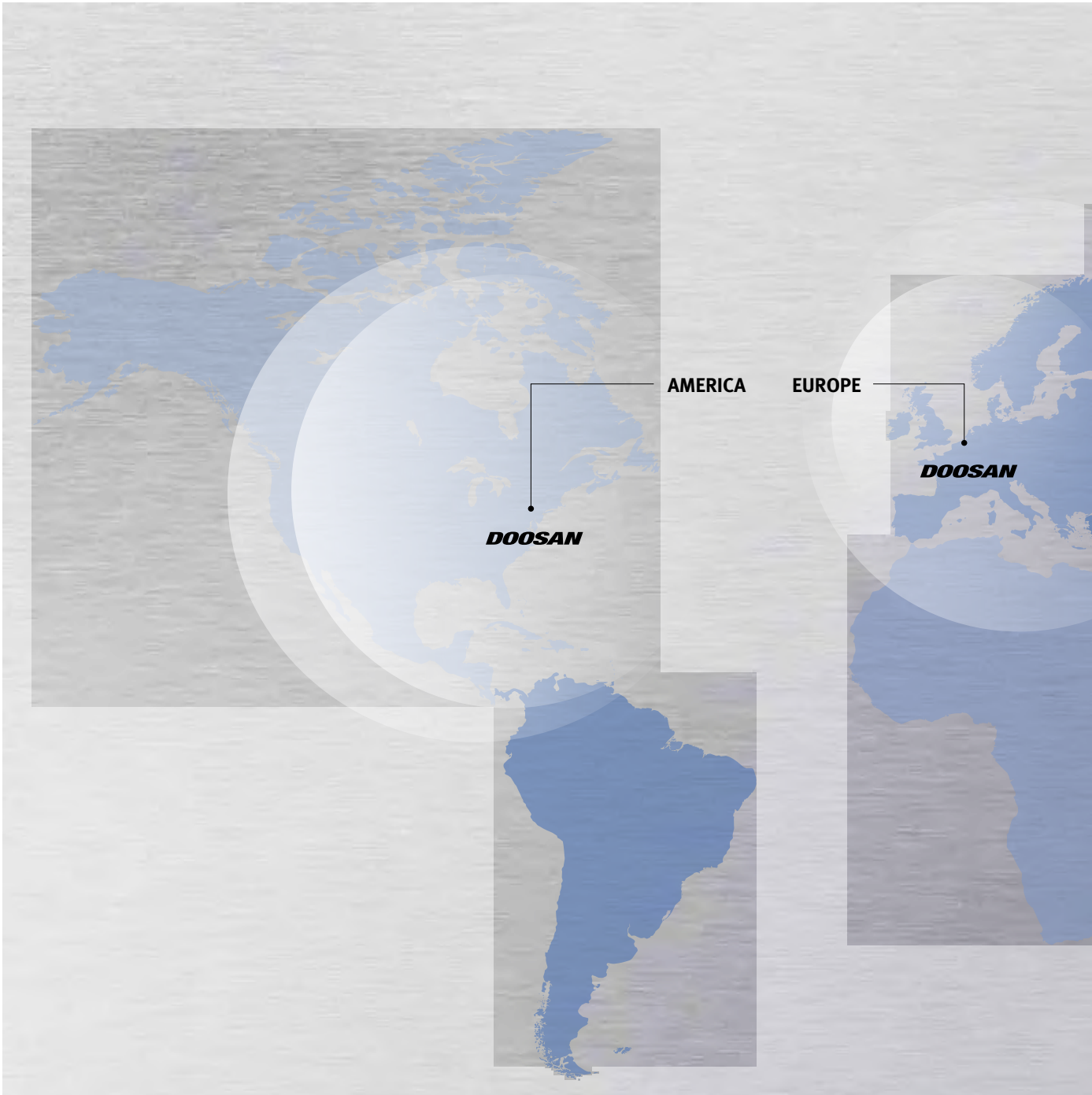
No.	Division	Item	Spec.	Doosan Fanuc i Series			
				PUMA TW2100/ TW2600/ TS2600	PUMA TW2100-GL/ TW2600-GL/ TS2600-GL	PUMA TW2100M/ TW2600M/ TS2600M	PUMA TW 2100M-GL/ TW2600M-GL/ TS2600M-GL
1	Controlled axis	Cs contouring control		X	X	●	●
2		Torque control		●	●	●	●
3		HRV2 control		●	●	●	●
4		Inch/metric conversion		●	●	●	●
5		Stored stroke check 1		●	●	●	●
6		Stored stroke check 2,3		●	●	●	●
7		Stored limit check before move		●	●	●	●
8		Chamfering on/off		●	●	●	●
9	Operation	DNC operation	Included in RS232C interface.	●	●	●	●
10		DNC operation with memory card		●	●	●	●
11		Tool retract and recover		○	○	○	○
12		Wrong operation prevention		●	●	●	●
13		Reference position shift		●	●	●	●
14		Handle interruption		○	○	○	○
15		Incremental feed	x1,x10,x100	●	●	●	●
16		Manual handle retrace		○	○	○	○
17	Interpolation functions	Nano interpolation		●	●	●	●
18		Linear interpolation		●	●	●	●
19		Circular interpolation		●	●	●	●
20		Polar coordinate interpolation		X	X	●	●
21		Cylindrical interpolation		X	X	●	●
22		Helical interpolation		X	X	○	○
23		Thread cutting, synchronous cutting		●	●	●	●
24		Multi threading		●	●	●	●
25		Thread cutting retract		●	●	●	●
26		Continuous threading		●	●	●	●
27		Variable lead thread cutting		●	●	●	●
28		Circular thread cutting		○	○	○	○
29		Polygon machining with two spindles		X	X	●	●
30		High-speed skip	Input signal is 8 points.	○	○	○	○
31		2nd reference position return	G30	●	●	●	●
32		3rd/4th reference position return		●	●	●	●
33	Feed function	Override cancel		●	●	●	●
34		AI contour control I		○	○	○	○
35		AI contour control II		○	○	○	○
36		Rapid traverse block overlap		●	●	●	●
37		Optional block skip	9 pieces	●	●	●	●
38		Absolute/incremental programming	Combined use in the same block	●	●	●	●
39		Automatic coordinate system setting	9 pieces	●	●	●	●
40		Absolute/incremental programming	Combined use in the same block	●	●	●	●

● Standard ○ Optional X Not applicable

No.	Division	Item	Spec.	Doosan Fanuc i Series			
				PUMA TW2100/ TW2600/ TS2600	PUMA TW2100-GL/ TW2600-GL/ TS2600-GL	PUMA TW2100M/ TW2600M/ TS2600M	PUMA TW 2100M-GL/ TW2600M-GL/ TS2600M-GL
41	Program input	Automatic coordinate system setting	9 pieces	●	●	●	●
42		Workpiece coordinate system	G52 - G59	●	●	●	●
43		Workpiece coordinate system preset		●	●	●	●
44		Direct drawing dimension programming		●	●	●	●
45		G code system	A	●	●	●	●
46		G code system	B/C	●	●	●	●
47		Chamfering/Corner R		●	●	●	●
48		Custom macro		●	●	●	●
49		Addition of custom macro common variables	#100 - #199, #500 - #999	●	●	●	●
50		Canned cycle		●	●	●	●
51		Multiple repetitive cycles	G70~G76	●	●	●	●
52		Multiple repetitive cycles II	Pocket profile	●	●	●	●
53		Canned cycle for drilling		●	●	●	●
54		Coordinate system shift		●	●	●	●
55		Direct input of coordinate system shift		●	●	●	●
56		Pattern data input		●	●	●	●
57	Operation Guidance Function	EZ Guidei(Conversational Programming Solution)		●	●	●	●
58		Easy Operation package		●	●	●	●
59	Auxiliary/ Spindle speed function	Constant surface speed control		●	●	●	●
60		Spindle override	0 - 150%	●	●	●	●
61		Spindle orientation		●	●	●	●
62		Rigid tap		●	●	●	●
63		Arbitrary speed threading		○	○	○	○
64	Tool function / Tool compensation	Tool offset pairs	128-pairs	●	●	●	●
65		Tool offset pairs	200-pairs	○	○	○	○
66		Tool offset		●	●	●	●
67		Tool radius/Tool nose radius compensation		●	●	●	●
68		Tool geometry/wear compensation		●	●	●	●
69		Automatic tool offset		●	●	●	●
70		Direct input of offset value measured B		●	●	●	●
71		Tool life management		●	●	●	●
72	Accuracy compensation function	Backlash compensation for each rapid traverse and cutting feed		●	●	●	●
73		Stored pitch error compensation		○	○	○	○
74	Editing operation	Part program storage size & Number of registerable programs	2560M(1MB)_800 programs	●	●	●	●
75		Part program storage size & Number of registerable programs	5120M(2MB)_800 programs	○	○	○	○
76		Program protect		●	●	●	●
77		Password function		●	●	●	●
78		Playback		●	●	●	●
79	Data input/ output	Fast data server		○	○	○	○
80		External data input		●	●	●	●
81		Memory card input/output		●	●	●	●
82		USB memory input/output		●	●	●	●
83		Automatic data backup		●	●	●	●
84	Interface function	Embedded Ethernet		●	●	●	●
85		Fast Ethernet		○	○	○	○
86	Robot interface	Robot interface with PMC I/O module		○	X	○	X
87		Robot interface with PROFIBUS-DP		○	X	○	X
88	Others	Display unit	10.4" color LCD	●	●	●	●
89		Tool Load Monitoring function	DMT	●	●	●	●

* w/o gantry only

Responding to Customers Anytime, Anywhere



Global Sales and Service Support Network

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

Technical Center: Sales Support, Service Support, Parts Support

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

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

Customer Support Service

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

Supplying Parts

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

Field Services

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

Technical Support

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

Training

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

Major Specifications

PUMA TW/TS series

Description		Unit	PUMA TW2100 [M]	PUMA TW2100-GL [M-GL]	PUMA TS2100 [M]	PUMA TS2100-GL [M-GL]	PUMA TW2600 [M]	PUMA TW2600-GL [M-GL]	PUMA TW2600B [MB] [GL]	PUMA TS2600 [MB]	PUMA TS2600-GL [M-GL]
Max. turning diameter (Max. / Min.)		mm (inch)	Ø240 (Ø9.4)	Ø130 / Ø30 (Ø5.1 / 1.2) (GL130) Ø180 / Ø30 (Ø3.1 / Ø1.2) (GL180)	Ø240 (Ø9.4)		Ø360 (Ø14.2)	Ø200 / Ø50 (Ø7.9 / Ø2.0) (GL200) Ø320 / Ø50 (Ø12.6 / Ø2.0) (GL320)	Ø360 (Ø14.2)		Ø200 / Ø50 (GL200) Ø320 / Ø50 (GL320)
Max. turning length		mm (inch)	128 5.0)	65 / 100 (2.6 / 3.9) (GL130) 80 / 150 (3.1 / 5.9) (GL180)	128 (5.0)		170 (6.7)	90 / 165 (3.5 / 6.5) (GL200) 35 / 185 (1.4 / 7.3) (GL320)	170 (6.7)		90 / 165 (3.5 / 6.5) (GL200) 35 / 185 (1.4 / 7.3) (GL320)
Chuck size		inch	8 {6}				10 {8, 12}		12	10 {8, 12}	
Travel distance	X / Z-axis	mm (inch)	135 / 160 (5.3 / 6.3)				190 (180+10) / 180 (7.5 (7.1+0.4) / 7.1)		190 (10+180)/ 180 (7.5 (0.4+7.1) / 7.1)	190 (180+10) / 180 (7.5 (7.1+0.4) / 7.1)	
Rapid traverse	X / Z-axis	m/ min (ipm)	24 / 24 (944.9 / 944.9)				24 / 24 (944.9 / 944.9)				
Spindle motor power (S3 25%/cont.)		kW (Hp)	15/11 (20.1/14.8)				18.5/15 (24.8/20.1)		22/18.5 (29.5/24.8)	18.5/15 (24.8/20.1)	
Machine dimensions (L x W*)		mm (inch)	2030 x 2098 (79.9 x 82.6) (GL130) 2200 x 2098 (86.6 x82.6) (GL180)	3900 x 2098 (153.5 x82.6) (GL130) 4000 x 2098 (157.5 x 82.6) (GL180)	-	3263x 2101 (128.5 x 82.7)	2520 x 2061 (99.2 x 81.1) (GL200) 2620 x 2131 (103.1 x 83.9) (GL320)	4840** x 2715 (190.6 x 106.9) (GL200) 4940** x 2715 (194.5 x 106.9) (GL320)	2620x 2231 (103.1x 87.8)	1555 x 2061 (61.2 x 81.1)	3875** x 2715 (152.6 x 106.9)

* Chip conveyor excluded. ** Based on type A3 (stockers on the left/right), {}: Option

Doosan Machine Tools

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* The specifications and information above-mentioned may be changed without prior notice.
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Fire Safety Precautions | There is a high risk or fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting use coolants and modifying the machine without the consent of the manufacturer. Please check the SAFETY GUIDANCE carefully before using the machine.

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