



SLANT TURN 500,550,600 S E R I E S

500 500M

550 550M

600 600M

Advanced features of the MAZATROL SmoothG CNC

Advanced features of the MAZATROL SmoothG CNC

Touch screen operation – Operates similar to your smart phone / tablet

PC with Windows® 8 embedded OS

Fastest CNC in the world – Latest hardware and software for unprecedented speed and precision

Easy conversational programming

Smooth graphical user interface and support functions for unsurpassed ease of operation

MTConnect® ready – Convenient networking

Windows is a registered trademark of Microsoft Corporation in the United States and other countries. MTConnect is a registered trademark of AMT in the United States and other countries.



MAZATROL
SMOOTHG

MAZATROL SmoothC is optionally available.

Designed for heavy-duty machining of large, long shaft workpieces

- Wide range of spindle bores up to $\Phi 375$ mm ($\Phi 14.76$ ")
- Max. swing : $\Phi 1040$ mm ($\Phi 40.94$ "), max. machining diameter : $\Phi 910$ mm ($\Phi 35.83$ "), spindle output : 45 kW (40% ED 30 min. rating) and spindle torque : 7000 N·m (5163 ft·lbs)
- Linear roller guides provide improved positioning accuracy with lower friction
- The maximum available steady rest size is $\Phi 410$ mm ($\Phi 16.14$ ")- largest for this turning center class
- 4000 rpm top speed of rotary tool spindle with output of 7.5 kW (10 HP)



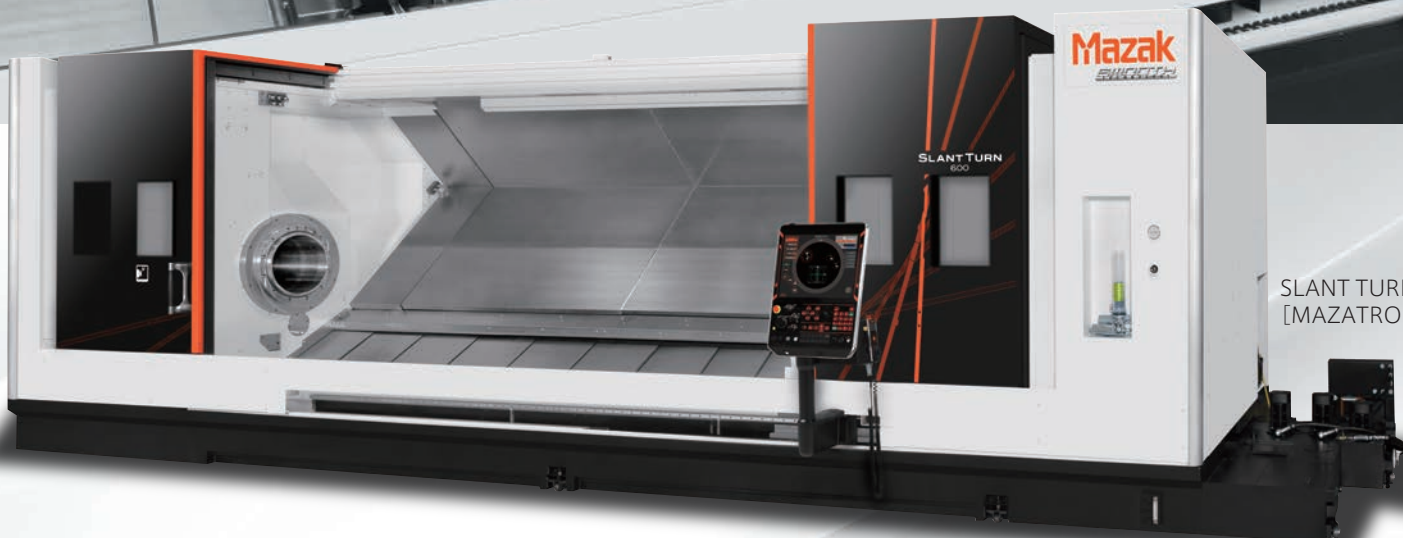
Innovative support for operator

ergonomics

Ease of operation



Designed with environmental considerations



SLANT TURN 600 (4000U)
[MAZATROL SmoothG]

Heavy-duty large CNC turning center

SLANT TURN
500,550,600 SERIES

Higher Productivity

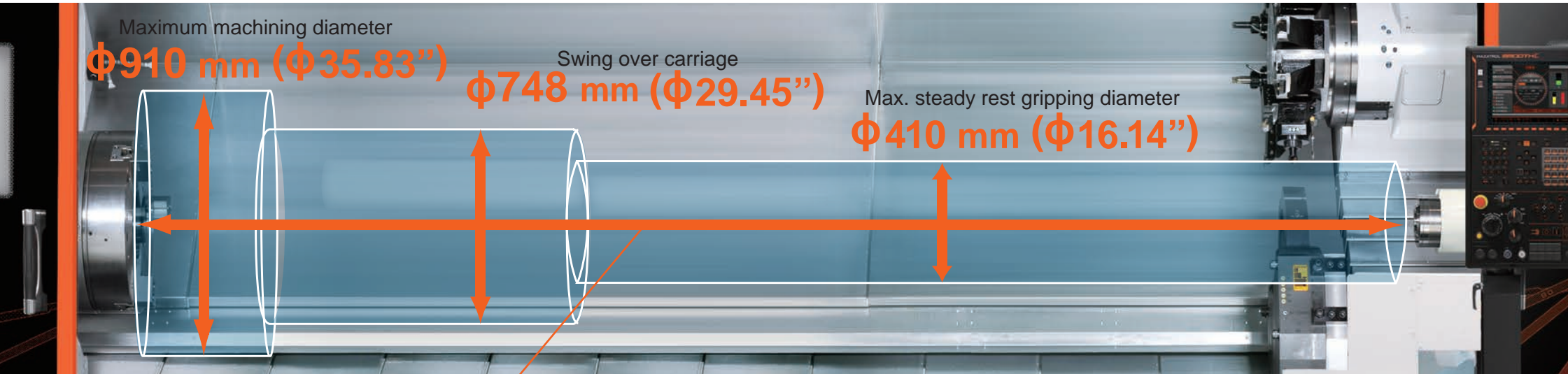
Extensive series range

Maximum swing
Φ1040 mm (Φ40.94")

Maximum machining diameter
Φ910 mm (Φ35.83")

Swing over carriage
Φ748 mm (Φ29.45")

Large steady rest for long shaft workpieces
up to maximum diameter of
Φ410 mm (Φ16.14")



Above specification is limited depending on workpiece

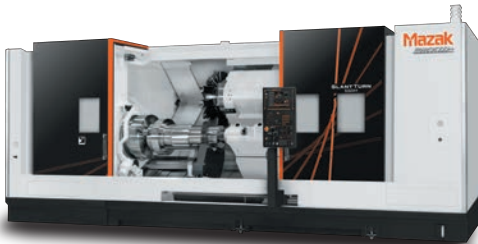
Maximum machining length* **1016 mm / 2009 mm / 3144 mm / 4033 mm**
(40.00") (79.09") (123.78") (158.78")
(C/1000U) (2000U) (3000U) (4000U)

*SLANT TURN 550
Maximum machining length depends on machine type and chuck

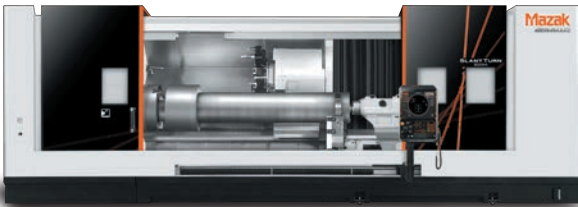
Model	Chuck size	Spindle	Turret	Tailstock	Universal
500	18" 21"	Spindle bore Φ185 mm (Φ7.28") Max. spindle speed 1600 rpm Max. torque 7000 N·m (5163 ft·lbs) Max. power 45 kW (60 HP) / 40% ED (30 min. rating)	12D bolt-on □32 mm (□1.25") / Φ50 mm (Φ2.00") (option:Φ80 mm (Φ3.00"))	—	C (Chucker)
500M			12D VDI type □32 mm (□1.25") / Φ50 mm (Φ2.00") (option:Φ80 mm (Φ3.00"))		
550	21"~	Spindle bore Φ275 mm (Φ10.83") Max. spindle speed 1000 rpm Max. torque 7000 N·m (5163 ft·lbs) Max. power 45 kW (60 HP) / 40% ED (30 min. rating) <div>OPTION Spindle bore Φ320 mm (Φ12.60") Max. spindle speed 750 rpm Max. torque 7000 N·m (5163 ft·lbs) Max. power 45 kW (60 HP) / 40% ED (30 min. rating)</div>	12D bolt-on □32 mm (□1.25") / Φ50 mm (Φ2.00") (option:Φ80 mm (Φ3.00"))	Two position tailstock quill (manual quill positioning) 〈Max. thrust〉 • 25 kN:1000U / 2000U / 3000U • 30 kN:4000U	1000U 2000U 3000U 4000U
550M			12D VDI type □32 mm (□1.25") / Φ50 mm (Φ2.00") (option:Φ80 mm (Φ3.00"))		
600	21"~	Spindle bore Φ375 mm (Φ14.76") Max. spindle speed 500 rpm Max. torque 7000 N·m (5163 ft·lbs) Max. power 45 kW (60 HP) / 40% ED (30 min. rating)	12D bolt-on □32 mm (□1.25") / Φ50 mm (Φ2.00") (option:Φ80 mm (Φ3.00"))	Two position tailstock quill (manual quill positioning) 〈Max. thrust〉 • 25 kN:2000U / 3000U • 30 kN:4000U	2000U 3000U 4000U
600M			12D VDI type □32 mm (□1.25") / Φ50 mm (Φ2.00") (option:Φ80 mm (Φ3.00"))		



SLANT TURN 550M (C) [MAZATROL SmoothG]



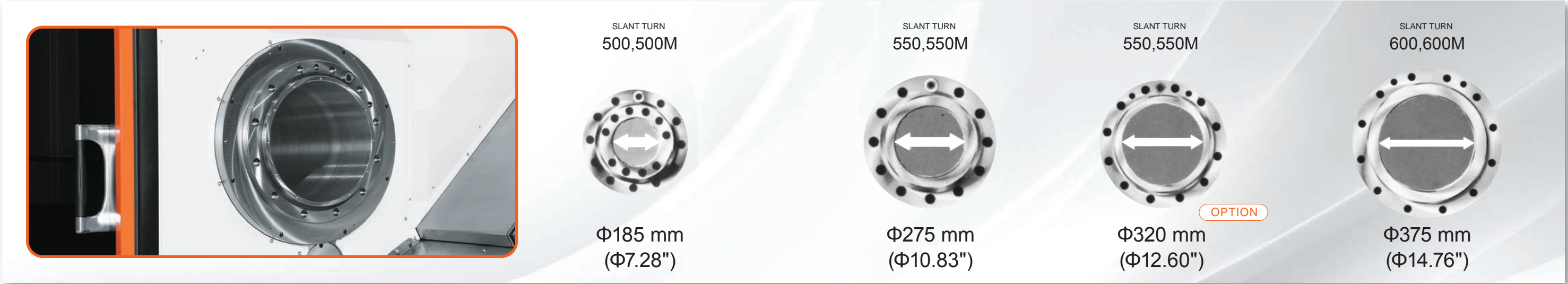
SLANT TURN 550M (2000U) [MAZATROL SmoothC]



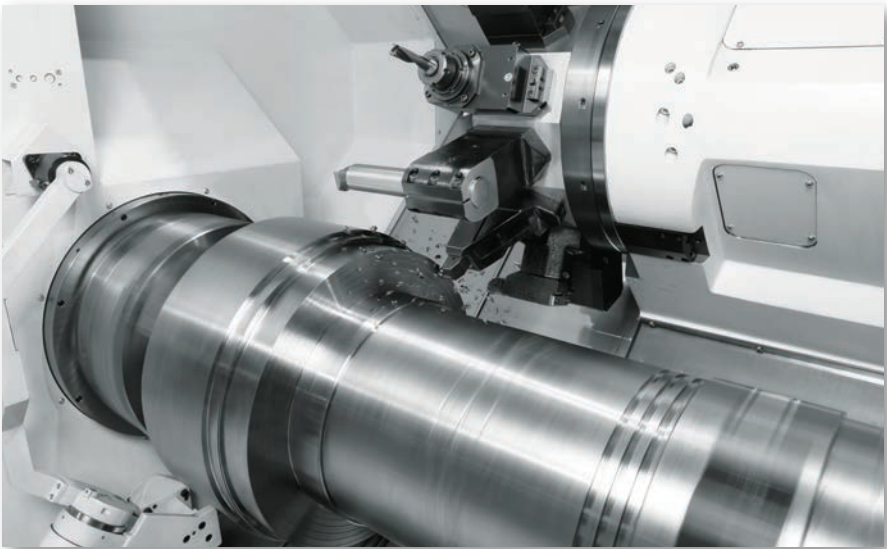
SLANT TURN 500M (3000U) [MAZATROL SmoothG]

Higher Productivity

Wide range of spindle bores up to $\Phi 375$ mm ($\Phi 14.76$ ")



Powerful main spindle



Spindle torque **7000 N·m**
(5163 ft·lbs)
Spindle output **45 kW (60 HP)**

The rigid SLANT TURN 500,550,600 spindles are designed for an exceptional range of applications- both high-speed and heavy duty-cutting, thanks to the AC inverter motor and two ranges. To ensure high accuracy, the spindle can be indexed in 0.0001 degree increments.

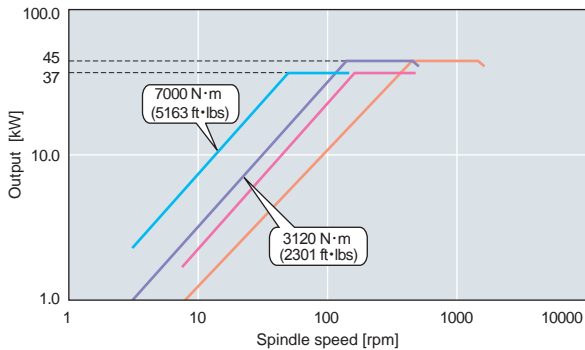
SLANT TURN 500,500M

Spindle bore $\Phi 185$ mm ($\Phi 7.28$ "), 1600 rpm top speed

Max. torque 7000 N·m (5163 ft·lbs)

Main spindle power AC 45 kW (60 HP) / 40% ED (30 min. rating)
AC 37 kW (50 HP) / cont. rating

Low speed winding: Low range Low speed winding: High range
High speed winding: Low range High speed winding: High range



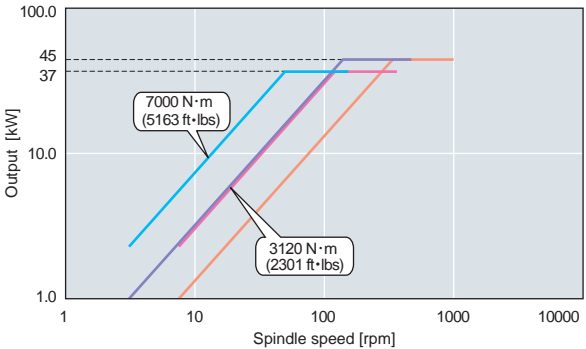
SLANT TURN 550,550M

Spindle bore $\Phi 275$ mm ($\Phi 10.83$ "), 1000 rpm top speed

Max. torque 7000 N·m (5163 ft·lbs)

Main spindle power AC 45 kW (60 HP) / 40% ED (30 min. rating)
AC 37 kW (50 HP) / cont. rating

Low speed winding: Low range Low speed winding: High range
High speed winding: Low range High speed winding: High range



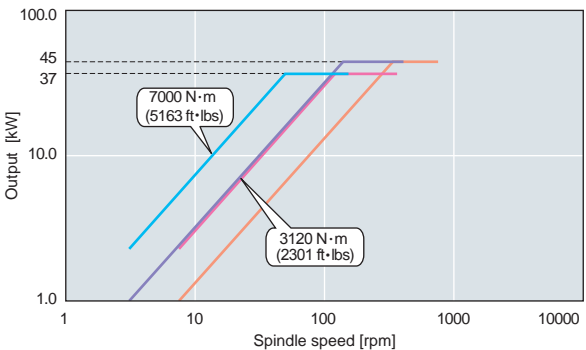
SLANT TURN 550,550M

OPTION
Spindle bore $\Phi 320$ mm ($\Phi 12.60$ "), 750 rpm top speed

Max. torque 7000 N·m (5163 ft·lbs)

Main spindle power AC 45 kW (60 HP) / 40% ED (30 min. rating)
AC 37 kW (50 HP) / cont. rating

Low speed winding: Low range Low speed winding: High range
High speed winding: Low range High speed winding: High range



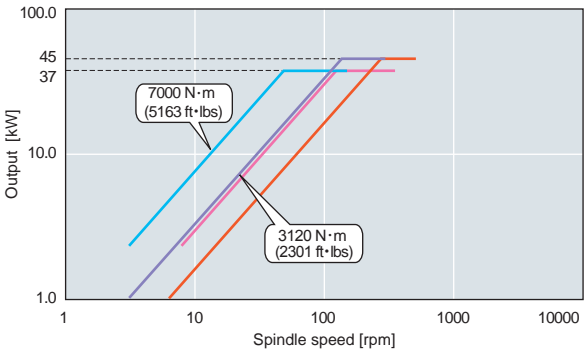
SLANT TURN 600,600M

Spindle bore $\Phi 375$ mm ($\Phi 14.76$ "), 500 rpm top speed

Max. torque 7000 N·m (5163 ft·lbs)

Main spindle power AC 45 kW (60 HP) / 40% ED (30 min. rating)
AC 37 kW (50 HP) / cont. rating

Low speed winding: Low range Low speed winding: High range
High speed winding: Low range High speed winding: High range



Higher Productivity

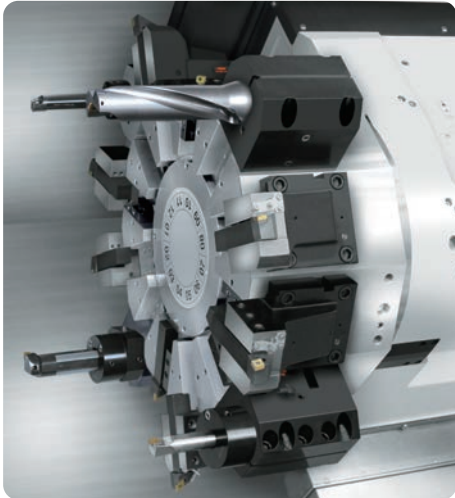
Turret

Bolt-on

500, 550, 600

The turret is rigidly clamped by a high-index coupling for high-performance machining.

Tool capacity	12 tools
O.D Facing	□32 mm × 150 mm (□1.25" × 6.00")
Boring bar	Φ50 mm (Φ2.00") (Option : Φ80 mm (Φ3.00"))
Turret indexing method	Random selection, shortest path (Automatic mode) Uni-directional selectable (Manual mode)
Turret indexing time	0.5 sec / 1 step



VDI-type turret

500M, 550M, 600M

The rotary tool spindle of the SLANT TURN 500M,550M,600M has a maximum speed of 4000 rpm and output of 7.5 kW (10 HP) to provide performance comparable to a small machining center, which ensures high efficiency milling. A high-torque version with a top speed of 3000 rpm and output of 11 kW (15 HP) is optionally available.

Tool capacity	12 tools
Tool dimensions	O.D Facing □32 mm × 150 mm (□1.25" × 6.00") Boring bar Φ50 mm (Φ2.00") (Option : Φ80 mm (Φ3.00"))
Turret indexing method	Random selection, shortest path (Automatic mode) Uni-directional selectable (Manual mode)
Turret indexing time	0.4 sec / 1 step

	Standard	Option*
Max. rotary tool spindle speed	4000 rpm	3000 rpm
Rotary tool spindle	AC 7.5 kW (10 HP) (4 min. rating) AC 1.5 kW (2 HP) (cont. rating)	AC 11 kW (15 HP) (40% ED / 30 min. rating) AC 7.5 kW (10 HP) (cont. rating)
Max. torque	95 N·m (70 ft·lbs) (4 min. rating)	140 N·m (103 ft·lbs) (40% ED / 30 min. rating)
Machining capability	Drill Φ25 mm (Φ0.98") Endmill Φ25 mm (Φ0.98") Tap M24 (1-8UNC)	Drill Φ25 mm (Φ0.98") Endmill Φ25 mm (Φ0.98") M30 (1 1/4-7UNC)

* High torque milling holder required

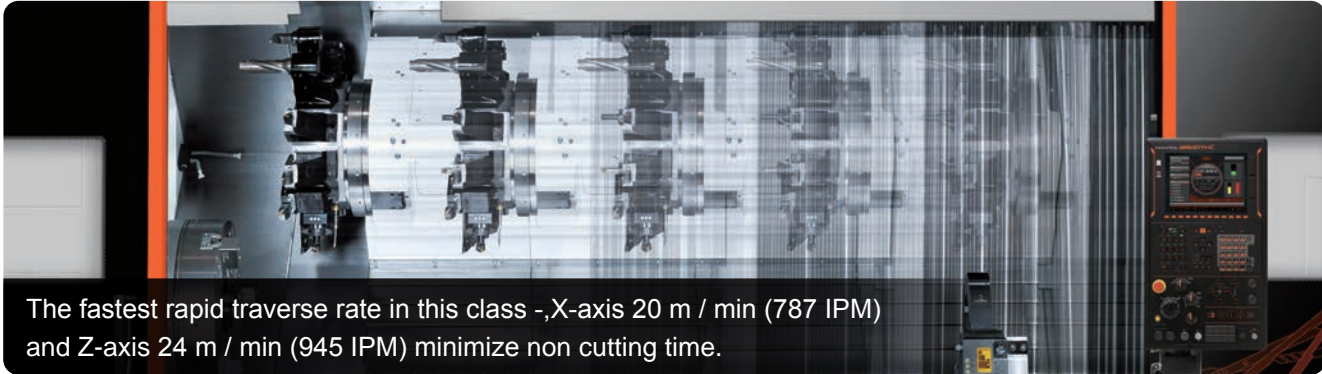


VDI-type turret holders

The tool holders can be quickly loaded / unloaded by turning a single bolt for minimum tool set up time.



The fastest rapid traverse rate in this class



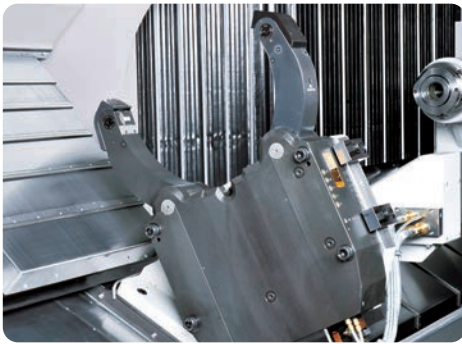
Steady rest OPTION

Automatic steady rest

2000U, 3000U, 4000U

The maximum available steady rest size is Φ410 mm (Φ9.84")- largest for this turning center class. Positioning time is considerably reduced thanks to operation by CNC. Additionally, the tailstock can approach much closer to the steady rest for an expanded machining area.

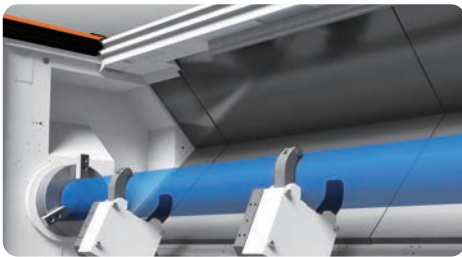
Steady rest model	Gripping range
SMW K5.1	Φ100 ~ 410 mm (Φ3.94"~16.14")
SMW SLU-X5	Φ45 ~ 310 mm (Φ1.77"~12.20")
SMW SLU-X4	Φ30 ~ 245 mm (Φ1.18"~9.65")



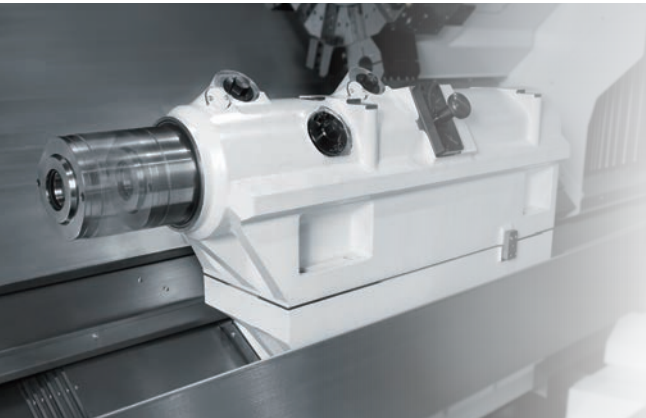
Double base steady rests

4000U

Double base steady rests are available for supporting long shaft workpieces. Maximum support diameter is Φ410 mm (Φ16.14").



Tailstock (1000U, 2000U, 3000U, 4000U)



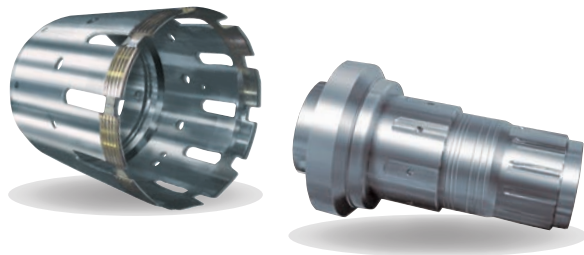
Two position tailstock quill (manual quill positioning) for supporting workpieces

The tailstock quill can extend 250 mm (9.84") making it possible to support both short and long shaft workpieces.

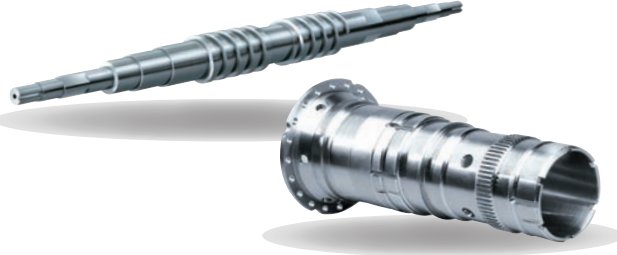
Applications

Designed for machining large, long shaft workpieces

Energy



Construction machinery



Power generation



Marine



Higher Accuracy

Roller guides on all linear axes

By utilizing linear roller guides on the X-and Z-axes, not only is high rigidity realized but also smooth cutting even at high speed feedrates.

High rigidity bed

The machine base is designed for heavy duty cutting by using structural analysis to ensure the maximum rigidity.



Heat Displacement Control

INTELLIGENT THERMAL SHIELD

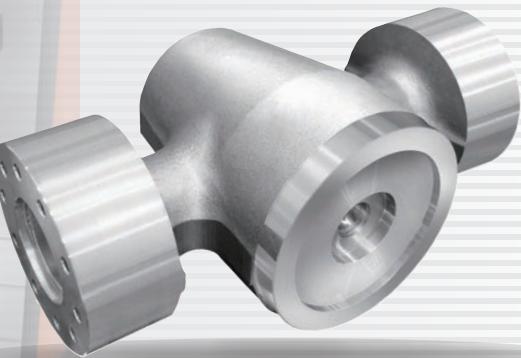
The SLANT TURN 500,550,600 series is equipped with automatic compensation for room temperature changes, the INTELLIGENT THERMAL SHIELD, to realize enhanced continuous machining accuracy. MAZAK has performed extensive testing in a variety of environments in a temperature controlled room and has used the results to develop a control system that automatically compensates for temperature changes in the machining area.



DATE	2015/01/21
TIME	00:00
COMP. AXIS	X
ADJUSTED COMP. R	3.0

Temperature and compensation are displayed on screen. Operator can adjust compensation by looking at the data.

Machining gate valve by indexing chuck



SLANT TURN 500M (Chuck) shown.

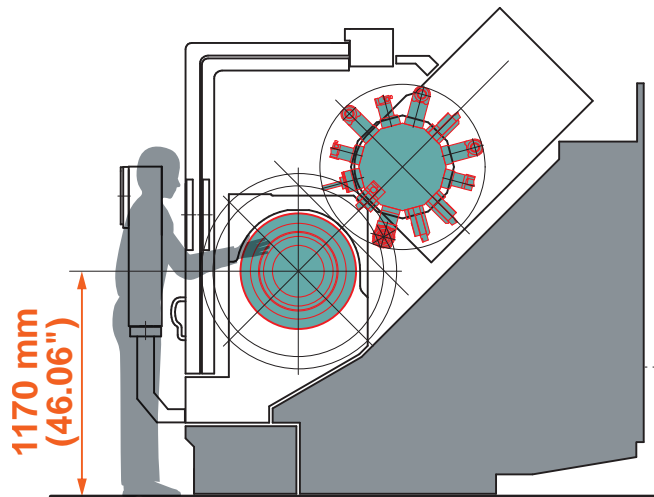
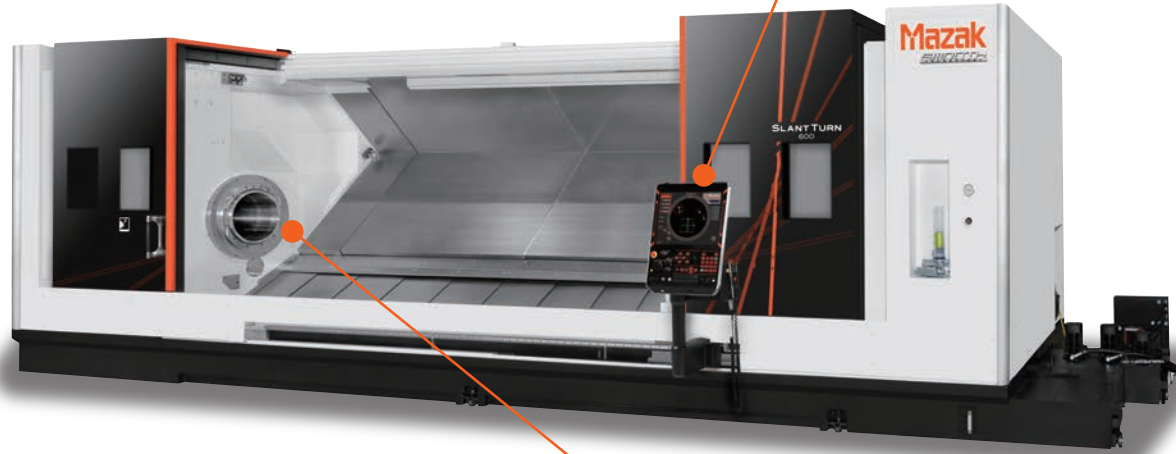
Ergonomics

Designed for convenient operation

ergonomics

Large door opening

Thanks to its large door opening, workpieces can easily be loaded / unloaded by using an overhead crane.



Note: The distance from the spindle center-line to the floor depends on chip conveyor specifications.

Turret access

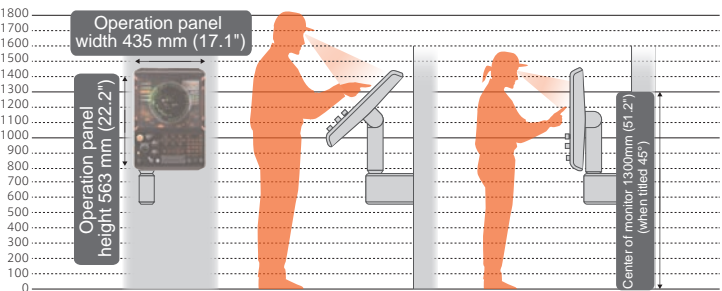
The turret features excellent accessibility for convenient tool setup.

MAZATROL *SMOOTHG*

Adjustable CNC operation panel



Operation touch panel can be tilted to the optimum position for any operator's height to ensure ease of operation.



MAZATROL *SMOOTHC*

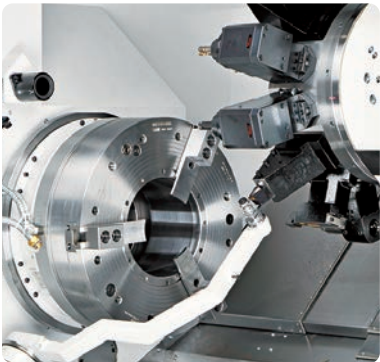
Rotating operation panel

The operation panel easily rotates to each operator's preferred position.



Tool eye OPTION

The automatic tool eye registers tool data by simply bringing the tool tip into contact with the tool eye during tool setup or changing inserts to considerably reduce the time required for tool setup.



Maintenance area

Items requiring frequent access for machine maintenance are arranged in one central location.



Color coded cables

Cables have a standard color coding for easy identification and convenient maintenance.



Intelligent Machine


Yamazaki Mazak has developed a variety of functions for the improvement of productivity, high accuracy machining and operator support. A variety of unique technologies has been developed that incorporates the expertise of experienced machine operators that realizes unsurpassed productivity and higher accuracy machining.



Advanced Intelligent+ Functions

A variety of Intelligent+ Functions provides incomparable operator support for exceptional ease of operation and optimum machine efficiency.

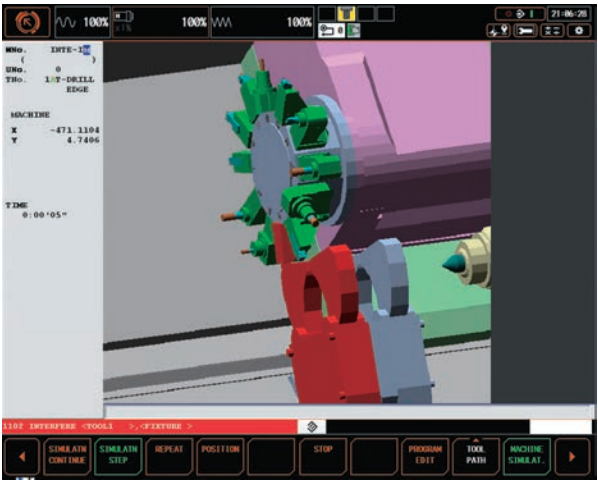
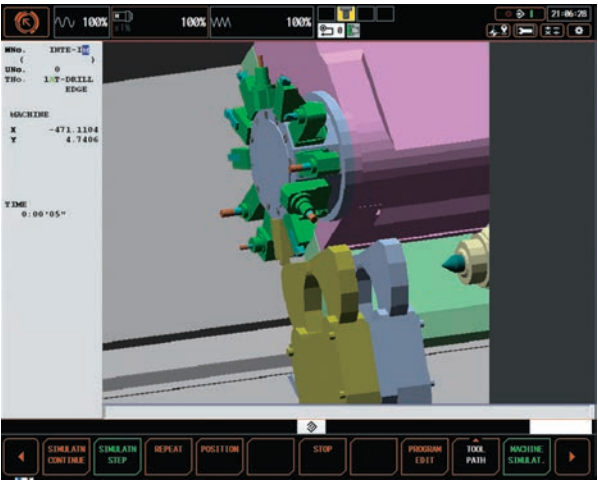




Machine Interference Prevention
**INTELLIGENT
SAFETY SHIELD**

MAZATROL
SMOOTH-G

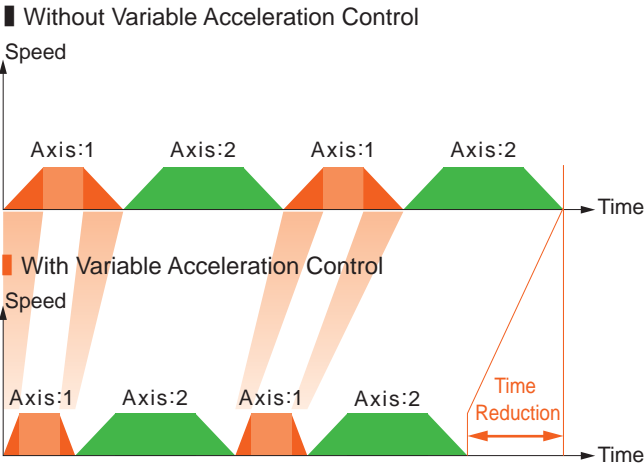
When an operator manually moves the machine axes for setup, tool measurement or changing inserts, the CNC shows a synchronized 3D model on the display for checking machine interference. If any machine interference occurs, the machine motion automatically stops. This function for use during automatic operation is optionally available.






Variable Acceleration Control Function
**VARIABLE ACCELERATION
CONTROL (M only)**

Variable acceleration control is a new function which permits the faster acceleration capability of linear axes to be used whenever possible. The slower acceleration of the rotary axes is not used for all program commands, resulting in faster machining cycle times

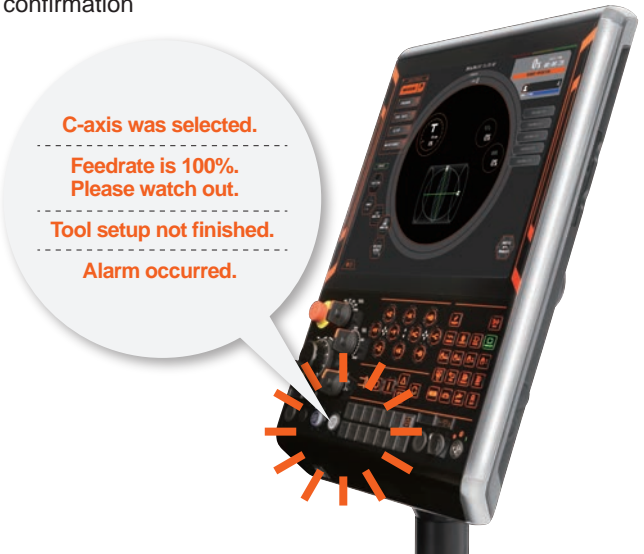




Verbal Message System
**MAZAK VOICE
ADVISER**

MAZATROL
SMOOTH-G

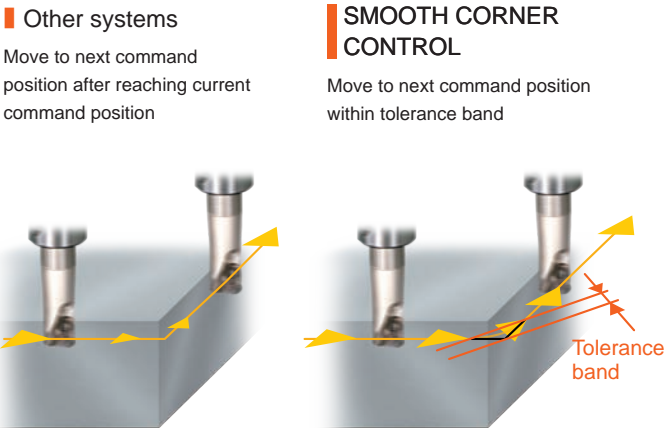
Verbal support for machine setup and safe conditions confirmation





Seamless Corner Control
**SMOOTH CORNER
CONTROL**

Improved finished surfaces and reduced cycle times by optimized acceleration / deceleration when machining corners.





Comprehensive Maintenance Monitor
**INTELLIGENT
MAINTENANCE SUPPORT**

Useful information for improved preventative maintenance to prevent unexpected machine downtime



No.	USE PART	PART NAME	LAST MAINT.
1	MILL SPINDLE	CONICAL SPRIG/COLLET	2014.10.17
2	MILL SPINDLE	ROT. JOINT/CHK. VALVE	2014.10.17
3	WAY COVER	X AXIS WIPER	2014.10.17
4	WAY COVER	Y AXIS WIPER	2014.10.17
5	WAY COVER	Z AXIS WIPER	2014.10.17
6	WAY COVER	SPINDLE 2 AXIS WIPER	2014.10.17
7	Z AXIS	TIMING BELT	2014.06.19
8	TURNING SPINDLE 1	ENCODER TIMING BELT	2014.09.17
9	TURNING SPINDLE 2	ENCODER TIMING BELT	2014.10.17
10	BATTERY BOX		2014.10.17
11			
12			
13			
14			
15			

MAZATROL CNC System

The seventh generation MAZATROL CNC system
— the core of Smooth Technology

MAZATROL *SMOOTHG*

From setup to machining
— designed for unsurpassed ease of operation



19" touch panel
Touch panel operation
— similar to your smartphone or tablet

USB port
Interface for peripheral equipment
USB-1.0+2.0

SD card slot
Transfer program and tool data

Operation switch
Large switches
— color changes from orange to green
when turned on

Dials
For frequently-used axes selection and
feedrate changes

New interface with touch operation ensures convenient data processing
— programming, confirmation, editing, and tool data registration

Process home screens

Five different home process screens
— each home screen displays the appropriate data in an easy-to-understand manner. Icons can be touched in each process display for additional screen displays.

Programming



Tool data



Setup



Machining



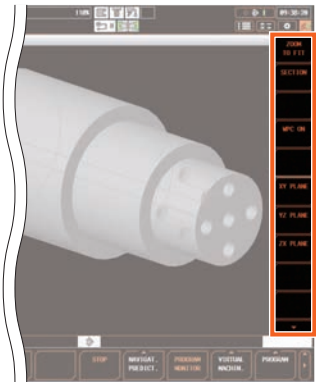
Maintenance



Pop-up windows

Values and items can easily be input/selected on pop-up windows.

Side menu



List menu



Screen key board

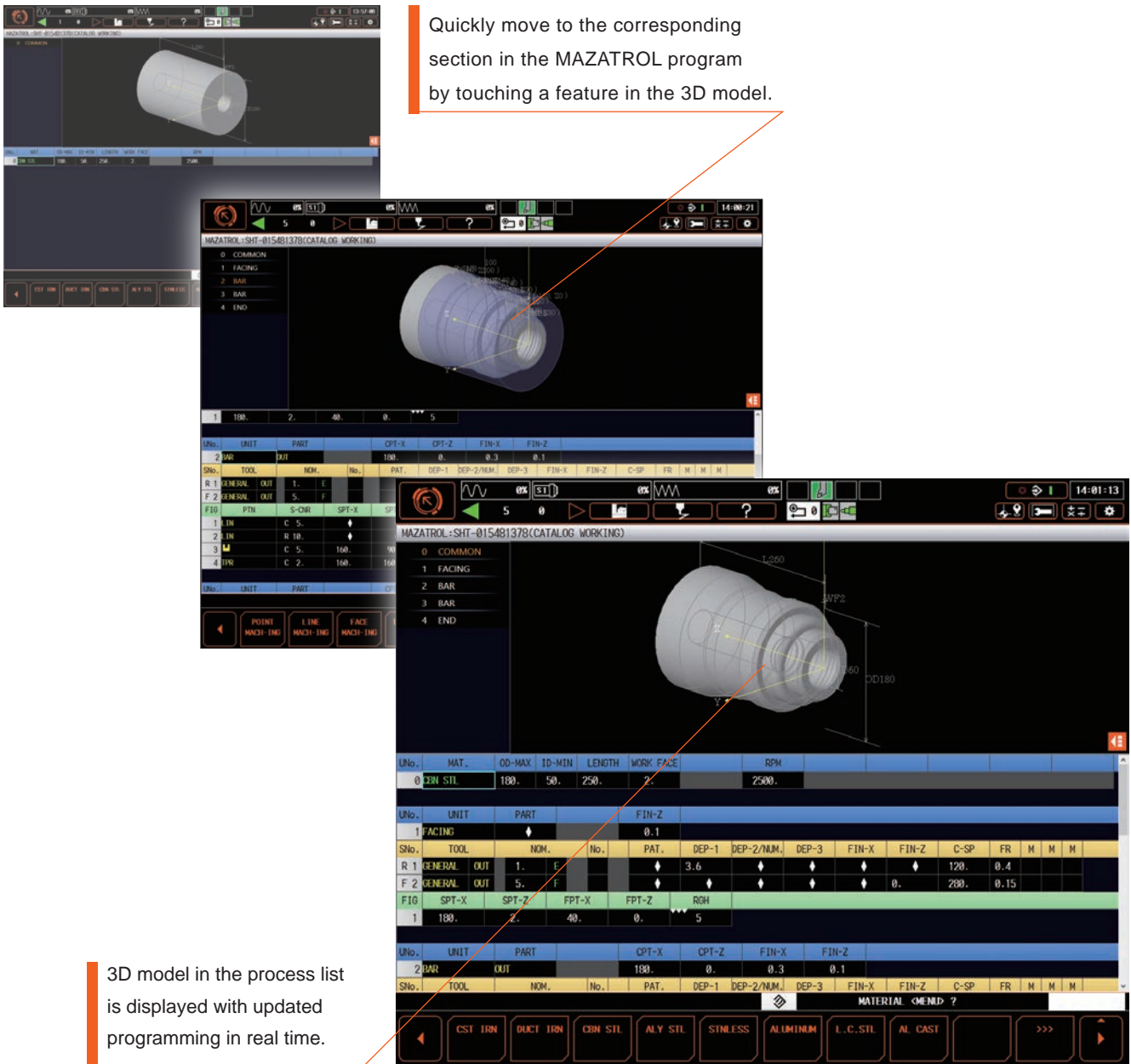


Ease of Programming

Visible programming screen

QUICK MAZATROL

MAZATROL program, unit list and 3D workpiece shape are linked to each other. After defining a machining unit in a MAZATROL program, the 3D shape is immediately displayed to easily and quickly check for any programming error.



MAZATROL CNC System

MAZATROL *SMOOTH^C*

Simplified display and key input operation
Following traditional conversational MAZATROL programming, this new system is designed for ease of operation by simplified key operation.



- USB interface
Transfer program and tool data
- SD card slot
Transfer program and tool data
- Menu keys under the display
can be pressed to go to other pages for program data input and editing
- Compact keypad with unique design for ease of operation
- Home screen key goes to the home screen from any display

Home screen

The home screen displays overall process status in an easy to understand manner.

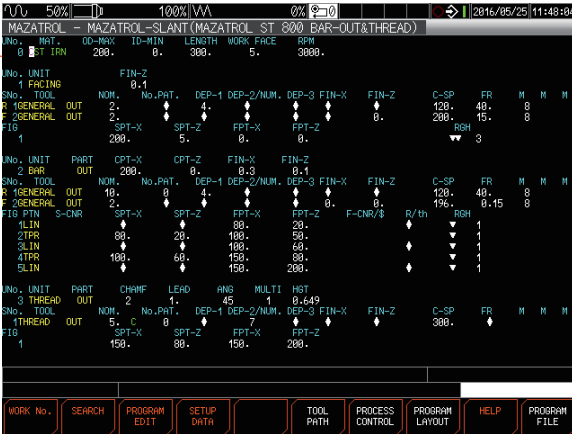
Comprehensive status display on one screen

- Machining
Displays axes in operation and load on motors
- Programming
Displays the simulation time and machining time
- Tool data
Displays status of tool layout
- Setup
Displays status of workpiece coordinate setting
- Maintenance
Overview of the status of items requiring maintenance



MAZATROL conversational programming

MAZATROL interactive programming uses conversational language and automatically determines cutting conditions, M codes, and G codes. Even a beginner operator can quickly make programs.



3D machine model

A 3D machine model is available to perform program interference checks with other CAD / CAM simulation software. (MAZATROL SmoothG, MAZATROL SmoothC)



MAZATROL SmoothG Specifications

	MAZATROL		EIA						
Number of controlled axes					Simultaneous 4 axes				
Least input increment					0.0001 mm, 0.00001 inch, 0.0001 deg				
High speed, high precision control					Shape error designation, Smooth corner control, Rapid traverse overlap				
Interpolation		Positioning (Linear interpolation), Positioning (Independent interpolation), Linear interpolation, Circular interpolation, Cylindrical coordinate interpolation, Polar coordinate interpolation, Equal pitch threading, Re-threading*, Override threading*, Override variable threading*, Synchronized milling spindle tapping*			Positioning (Linear interpolation), Positioning (Independent interpolation), Linear interpolation, Circular interpolation, Spiral interpolation, Helical interpolation, Equal pitch threading, Variable pitch threading, Threading (C-axis interpolation type), Cylindrical coordinate interpolation*, NURBS interpolation*, Polar coordinate interpolation*, Re-threading*, Override threading*, Override variable threading*, Synchronized milling spindle tapping*				
Feedrate		Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Dwell (specified time, specified number of rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate clamp, Variable acceleration / deceleration control, Constant control for G0 tilting*			Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Inverse time feed, Dwell (specified time, specified number of rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate clamp, Time constant changing for G1, Variable acceleration / deceleration control, Constant control for G0 tilting*				
Program registration		Max. number of programs : 960, Program storage : 2 MB, Program storage expansion : 8 MB*, Program storage expansion : 32 MB*							
Control display		Display : 19" touch panel, Resolution : SXGA							
Spindle functions		S code output, Spindle speed clamp, Spindle speed override, Spindle speed reaching detection Multiple position orient, Constant surface speed, Spindle speed command with decimal digits, Synchronized spindle control, Max. speed control for spindle							
Tool functions		Tool offset pairs : 4000, T code output for tool number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces)		Tool offset pairs : 4000, T code output for tool number, T code output for group number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces)					
Miscellaneous functions		M code output, Simultaneous output of multiple M codes							
Tool offset functions		Tool position offset, Tool length offset, Tool diameter / tool nose R offset, Tool nose shape offset, Tool wear offset, Fixed amount offset, Simple wear offset							
Coordinate system		Machine coordinate system, Work coordinate system, Local coordinate system, MAZATROL coordinate system, Additional work coordinates (300 set)							
Machine functions					Polygon cutting*, Hobbing*				
Machine compensation		G0 / G1 independent backlash compensation, Pitch error compensation							
Protection functions		Emergency stop, Interlock, Stroke check before travelling, Barrier, INTELLIGENT SAFETY SHIELD (manual mode), INTELLIGENT SAFETY SHIELD (automatic mode)*, MAZAK VOICE ADVISER							
Automatic operation mode		Memory operation		Memory operation, Tape operation, MDI operation, EtherNet operation*					
Automatic operation control		Optional stop, Dry run, Automatic handle control, MDI control, TPS, Restart, Single process, Machine lock		Optional block skip, Optional stop, Dry run, Automatic handle control, MDI control, TPS, Restart, Restart 2, Collation stop, Machine lock					
Manual measuring functions		Tool-setting data teach, Tool length and tip teach, Touch sensor coordinates measurement, Workpiece offset measurement, Tool eye measurement		Tool-setting data teach, Tool length and tip teach, Tool offset teach, Touch sensor coordinates measurement, Workpiece offset measurement, Tool eye measurement					
Automatic measuring functions		Workpiece measurement , Sensor calibration, Tool eye auto tool measurement, Tool breakage detection							
Interface		PROFIBUS-DP*, EtherNet I/P*, CC-Link							
Card interface		SD card interface*, USB							
EtherNet		10 M / 100 M / 1 Gbps							

* Option

MAZATROL SmoothC Specifications

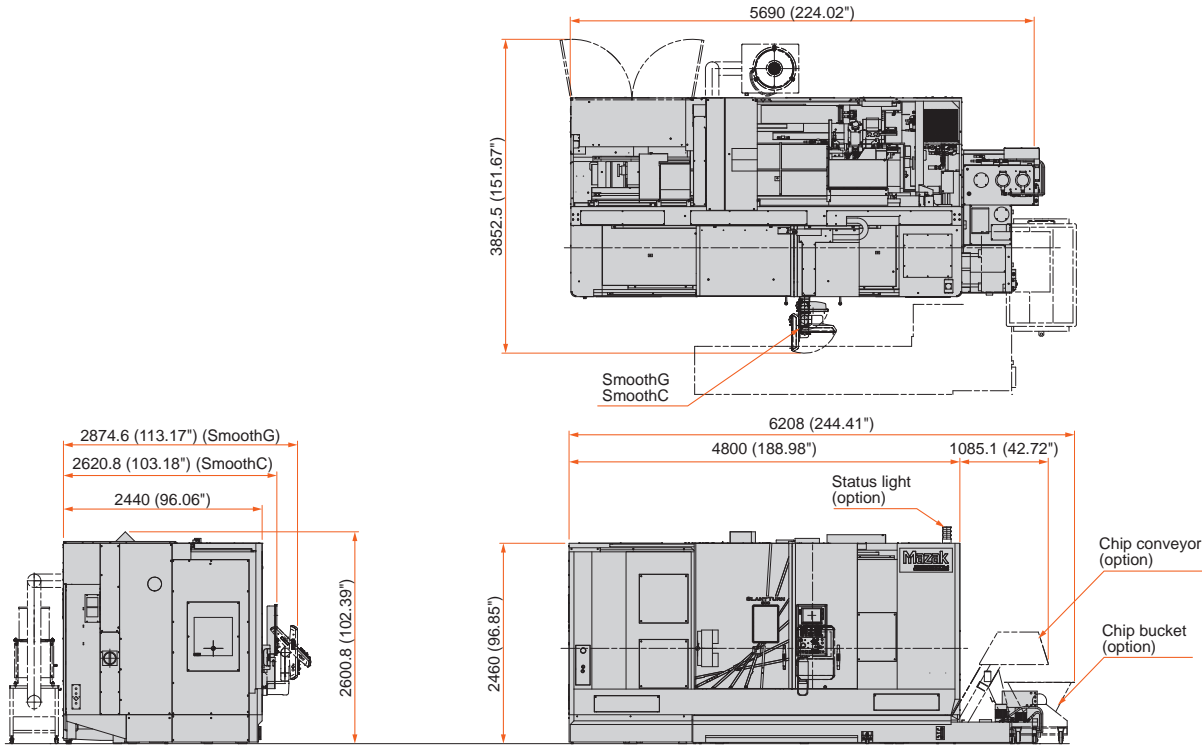
	MAZATROL		EIA						
Number of controlled axes					Simultaneous 4 axes				
Least input increment					0.0001 mm, 0.00001 inch, 0.0001 deg				
High speed, high precision control					Shape error designation, Smooth corner control, Rapid traverse overlap				
Interpolation		Positioning (Linear interpolation), Positioning (Independent interpolation), Linear interpolation, Circular interpolation, Cylindrical coordinate interpolation, Polar coordinate interpolation, Equal pitch threading, Re-threading*, Override threading*, Override variable threading*, Synchronized milling spindle tapping*			Positioning (Linear interpolation), Positioning (Independent interpolation), Linear interpolation, Circular interpolation, Spiral interpolation, Helical interpolation, Equal pitch threading, Variable pitch threading, Threading (C-axis interpolation type), Cylindrical coordinate interpolation*, NURBS interpolation*, Polar coordinate interpolation*, Re-threading*, Override threading*, Override variable threading*, Synchronized milling spindle tapping*				
Feedrate		Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Dwell (specified time, specified number of rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate clamp, Variable acceleration / deceleration control, Constant control for G0 tilting*			Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Inverse time feed, Dwell (specified time, specified number of rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate clamp, Time constant changing for G1, Variable acceleration / deceleration control, Constant control for G0 tilting*				
Program registration		Max. number of programs : 960, Program storage : 2 MB, Program storage expansion : 8 MB*, Program storage expansion : 32 MB*							
Control display		Display : 10.4" touch panel, Resolution : VGA							
Spindle functions		S code output, Spindle speed clamp, Spindle speed override, Spindle speed reaching detection Multiple position orient, Constant surface speed, Spindle speed command with decimal digits, Synchronized spindle control, Max. speed control for spindle							
Tool functions		Tool offset pairs : 4000, T code output for tool number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces)			Tool offset pairs : 4000, T code output for tool number, T code output for group number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces)				
Miscellaneous functions		M code output, Simultaneous output of multiple M codes							
Tool offset functions		Tool position offset, Tool length offset, Tool diameter / tool nose R offset, Tool nose shape offset, Tool wear offset, Fixed amount offset, Simple wear offset							
Coordinate system		Machine coordinate system, Work coordinate system, Local coordinate system, MAZATROL coordinate system, Additional work coordinates (300 set)							
Machine functions					Polygon cutting*, Hobbing*				
Machine compensation		G0 / G1 independent backlash compensation, Pitch error compensation							
Protection functions		Emergency stop, Interlock, Stroke check before travelling, Barrier							
Automatic operation mode		Memory operation			Memory operation, Tape operation, MDI operation, EtherNet operation*				
Automatic operation control		Optional stop, Dry run, Automatic handle control, MDI control, TPS, Restart, Single process, Machine lock			Optional block skip, Optional stop, Dry run, Automatic handle control, MDI control, TPS, Restart, Restart 2, Collation stop, Machine lock				
Manual measuring functions		Tool-setting data teach, Tool length and tip teach, Touch sensor coordinates measurement, Workpiece offset measurement, Tool eye measurement			Tool-setting data teach, Tool length and tip teach, Tool offset teach, Touch sensor coordinates measurement, Workpiece offset measurement, Tool eye measurement				
Automatic measuring functions		Workpiece measurement , Sensor calibration , Tool eye auto tool measurement, Tool breakage detection							
Interface		PROFIBUS-DP*, EtherNet I/P*, CC-Link							
Card interface		SD card interface*, USB							
EtherNet		10 M / 100 M / 1 Gbps							

* Option

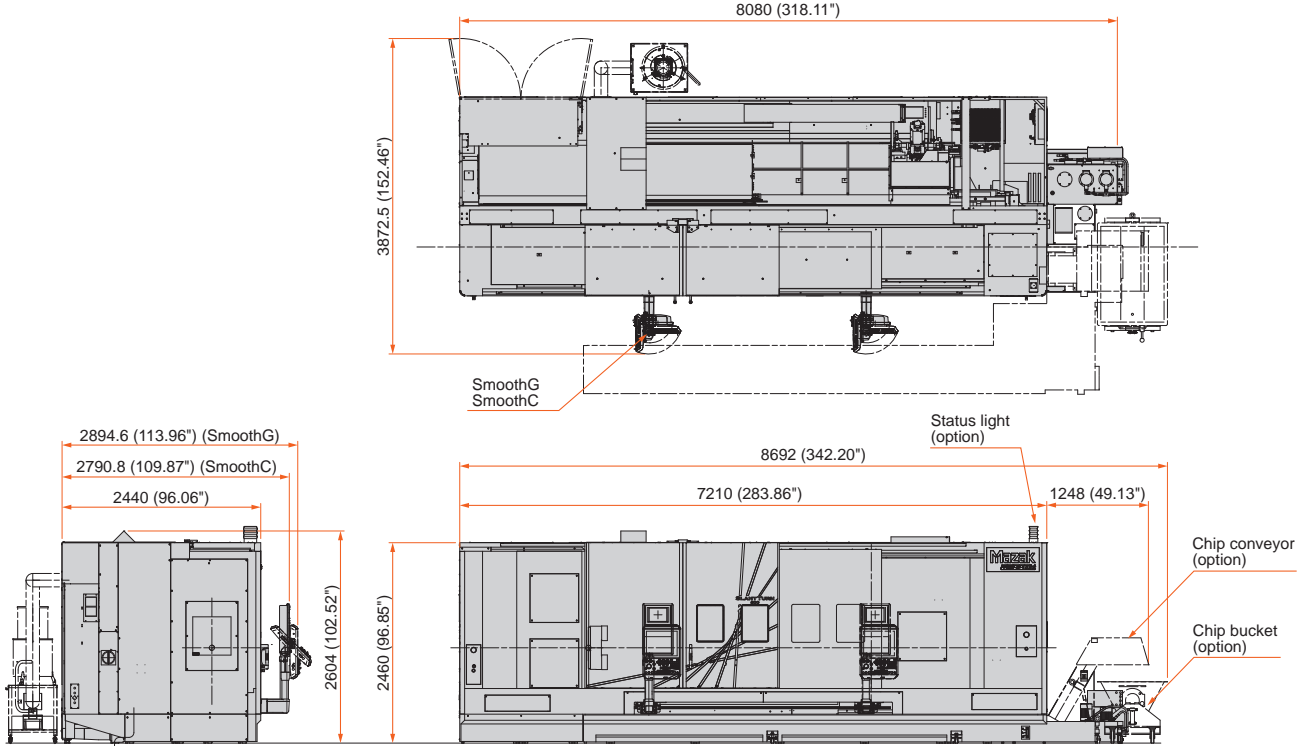
Machine Dimensions

Unit : mm (inch)

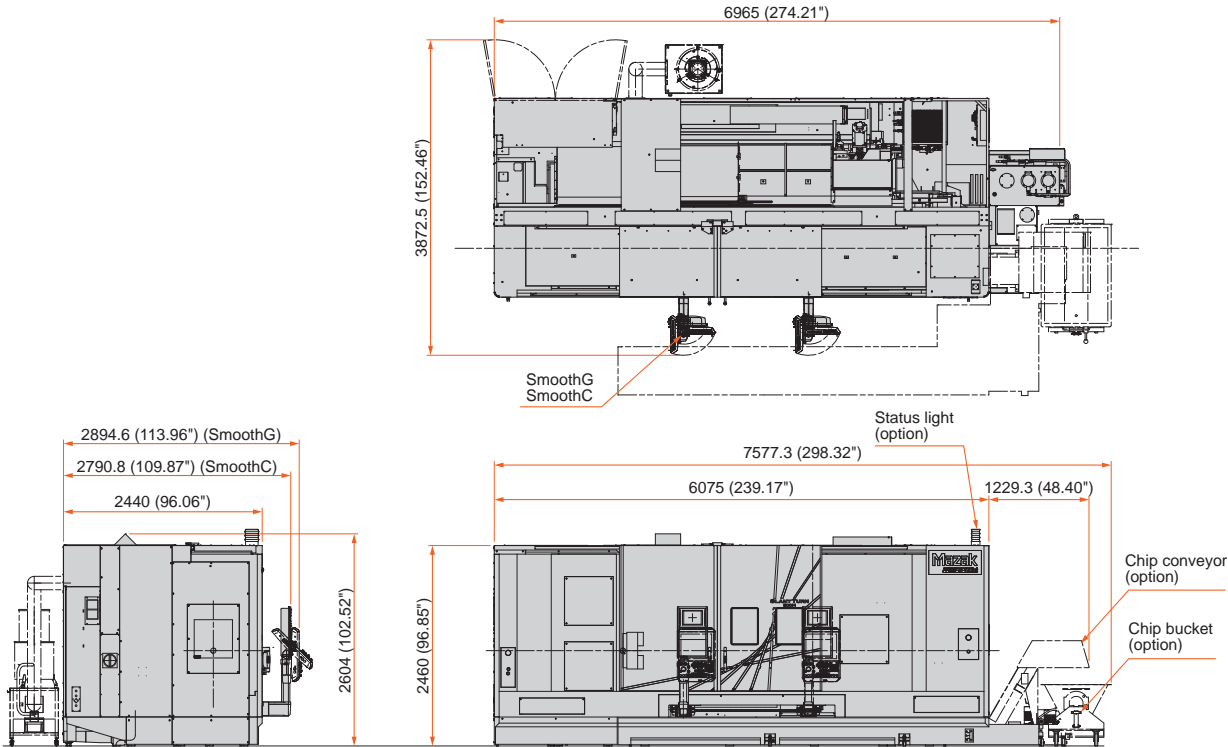
SLANT TURN 500 / 500M / 550 / 550M (C) Chucker / 1000U



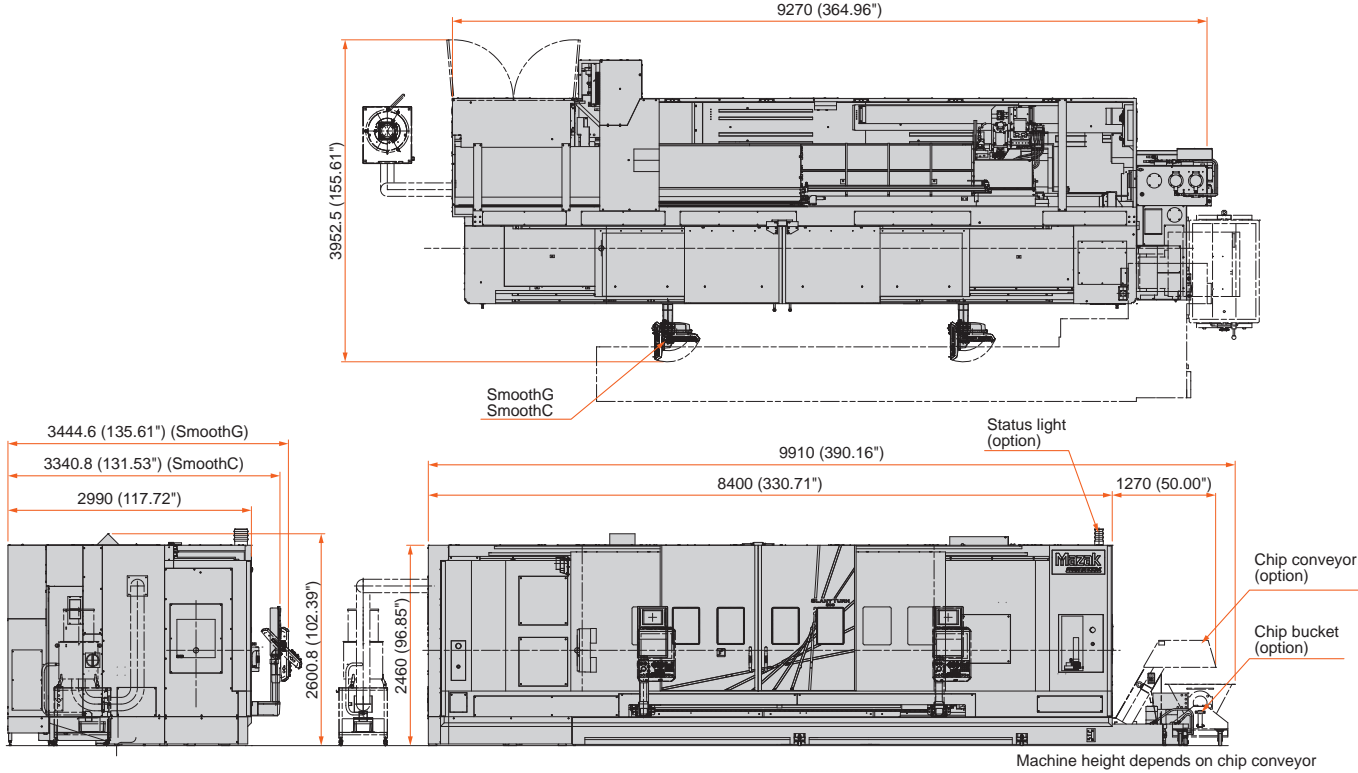
SLANT TURN 500 / 500M / 550 / 550M / 600 / 600M 3000U



SLANT TURN 500 / 500M / 550 / 550M / 600 / 600M 2000U



SLANT TURN 500 / 500M / 550 / 550M / 600 / 600M 4000U



Standard Machine Specifications

		SLANT TURN 500					SLANT TURN 500M				
		Chucker	1000U	2000U	3000U	4000U	Chucker	1000U	2000U	3000U	4000U
Capacity	Max. swing	Φ1040 mm (Φ40.94")									
	Max. machining diameter	Φ910 mm (Φ35.83")									
	Swing over carriage*1	Φ748 mm (Φ29.45")									
	Max. machining length*2	1047 mm (41.22")		2040 mm (80.31")	3175 mm (125")	4064 mm (160")	1082 mm (42.6")		2075 mm (81.69")	3210 mm (126.38")	4099 mm (161.38")
Travel	X-axis travel	465 mm (18.31")									
	Z-axis travel	1175 mm (46.26")		2165 mm (85.24")	3300 mm (129.92")	4190 mm (164.96")	1175 mm (46.26")		2165 mm (85.24")	3300 mm (129.92")	4190 mm (164.96")
Spindle	Chuck size	18"~									
	Spindle speed*3	1600 rpm									
	Number of spindle speed ranges	2 steps									
	Spindle nose	A2-15									
	Spindle bore	Φ185 mm (Φ7.28")									
Turret	Turret type	Bolt-on					VDI-type				
	Number of tools	12									
	Tool shank height	□32 mm (□1.25")									
	Boring bar shank diameter	Φ50 mm (Φ2.00") (option : Φ80 mm (Φ3.00"))									
	Turret indexing time	0.5 s / 1 step					0.4 s / 1 step				
Rotary tool spindle	Spindle speed	-					4000 rpm (option : 3000 rpm)				
	Milling capacity	-					Drill : Φ25 mm (Φ0.98"), Endmill : Φ25 mm (Φ0.98"), Tap: M24 (1-8UNC) (Optional tap: M30 (1 1/4-7UNC))				
Feedrate	Rapid traverse rate:X-axis	20000 mm/min (787 IPM)									
	Rapid traverse rate:Z-axis	24000 mm/min (945 IPM)									
Tailstock	Tailstock stroke	-	870 mm (34.25")	2083 mm (82.01")	3218 mm (126.69")	3890 mm (153.15")	-	870 mm (34.25")	2083 mm (82.01")	3218 mm (126.69")	3890 mm (153.15")
	Center	-	MT-NO.6					-	MT-NO.6		
Motors	Spindle motor (40% ED (30 min. rating) / cont. rating)	45 kW (60 HP) / 37 kW (50 HP)									
	Milling spindle motor (4 min. / cont. rating)	-					7.5 kW (10 HP) / 1.5 kW (2 HP) (Option 11 kW (15 HP) / 7.5 kW (10 HP))				
	Coolant pump motor	0.52 kW (0.7 HP)									
Power requirement	Electrical power (cont. rating)	75.3 kVA									
	Air source	0.5 MPa (73 PSI) 25 L/min (0.88 ft³/min)				0.5 MPa (73 PSI) 35 L/min (1.24 ft³/min)	0.5 MPa (73 PSI) 60 L/min (2.12 ft³/min)				0.5 MPa (73 PSI) 70 L/min (2.47 ft³/min)
Machine size	Machine height*4	2605 mm (102.56")									
	Floor space requirement*5	5690 mm (224.02") x 2440 mm (96.06")		6965 mm (274.21") x 2440 mm (96.06")	8080 mm (318.11") x 2440 mm (96.06")	9270 mm (364.96") x 2990 mm (117.72")	5690 mm (224.02") x 2440 mm (96.06")		6965 mm (274.21") x 2440 mm (96.06")	8080 mm (318.11") x 2440 mm (96.06")	9270 mm (364.96") x 2990 mm (117.72")
	Machine weight*6	13800 kg (30423 lbs)	15100 kg (33289 lbs)	16900 kg (37257 lbs)	18900 kg (41667 lbs)	22400 kg (49383 lbs)	13800 kg (30423 lbs)	15100 kg (33289 lbs)	16800 kg (37037 lbs)	18800 kg (41446 lbs)	22300 kg (49162 lbs)

*1 Without steady rest
*2 Max. machining length varies according to the type of chuck.
*3 Spindle speed depends on chuck specifications.
*4 Machine height depends on chip conveyor
*5 CNC panel not included
*6 Chip conveyor weight not included

		SLANT TURN 550					SLANT TURN 550M				
		Chuck	1000U	2000U	3000U	4000U	Chuck	1000U	2000U	3000U	4000U
Capacity	Max. swing	Φ1040 mm (Φ40.94")									
	Max. machining diameter	Φ910 mm (Φ35.83")									
	Swing over carriage*1	Φ748 mm (Φ29.45")									
	Max. machining length*2	1016 mm (40.00")		2009 mm (79.09")	3144 mm (123.78")	4033 mm (158.78")	1051 mm (41.38")		2044 mm (80.47")	3179 mm (125.16")	4068 mm (160.16")
Travel	X-axis travel	465 mm (18.31")									
	Z-axis travel	1175 mm (46.26")		2165 mm (85.24")	3300 mm (129.92")	4190 mm (164.96")	1175 mm (46.26")		2165 mm (85.24")	3300 mm (129.92")	4190 mm (164.96")
Spindle	Chuck size	21"~									
	Spindle speed*3	1000 rpm/ 750 rpm [option]									
	Number of spindle speed ranges	2 steps									
	Spindle nose	A2-20									
	Spindle bore	Φ275 mm (Φ10.83") / Φ320 mm (Φ12.60") [option]									
Turret	Turret type	Bolt-on					VDI-type				
	Number of tools	12									
	Tool shank height	□32 mm (□1.25")									
	Boring bar shank diameter	Φ50 mm (Φ2.00") (option : Φ80 mm (Φ3.00"))									
	Turret indexing time	0.5 s / 1 step					0.4 s / 1 step				
Rotary tool spindle	Spindle speed	-					4000 rpm (option : 3000 rpm)				
	Milling capacity	-					Drill : Φ25 mm (Φ0.98"), Endmill : Φ25 mm (Φ0.98"), Tap: M24 (1-8UNC) (Optional tap: M30 (1 1/4-7UNC))				
Feedrate	Rapid traverse rate:X-axis	20000 mm/min (787 IPM)									
	Rapid traverse rate:Z-axis	24000 mm/min (945 IPM)									
Tailstock	Tailstock stroke	-	870 mm (34.25")	2083 mm (82.01")	3218 mm (126.69")	3890 mm (153.15")	-	870 mm (34.25")	2083 mm (82.01")	3218 mm (126.69")	3890 mm (153.15")
	Center	-	MT-NO.6				-	MT-NO.6			
Motors	Spindle motor (40% ED (30 min. rating) / cont. rating)	45 kW (60 HP) / 37 kW (50 HP)									
	Milling spindle motor (4 min. / cont. rating)	-					7.5 kW (10 HP)/ 1.5 kW (2 HP) (Option 11 kW (15 HP) / 7.5 kW (10 HP))				
	Coolant pump motor	0.52 kW									
Power requirement	Electrical power (cont. rating)	75.3 kVA									
	Air source	0.5 MPa (73 PSI) 25 L/min (0.88 ft³/min)				0.5 MPa (73 PSI) 35 L/min (1.24 ft³/min)	0.5 MPa (73 PSI) 60 L/min (2.12 ft³/min)				0.5 MPa (73 PSI) 70 L/min (2.47 ft³/min)
Machine size	Machine height*4	2605 mm (102.56")									
	Floor space requirement*5	5690 mm (224.02") x 2440 mm (96.06")		6965 mm (274.21") x 2440 mm (96.06")	8080 mm (318.11") x 2440 mm (96.06")	9270 mm (364.96") x 2990 mm (117.72")	5690 mm (224.02") x 2440 mm (96.06")		6965 mm (274.21") x 2440 mm (96.06")	8080 mm (318.11") x 2440 mm (96.06")	9270 mm (364.96") x 2990 mm (117.72")
	Machine weight*6	14000 kg (30864 lbs)	15300 kg (33730 lbs)	17100 kg (37698 lbs)	19100 kg (42108 lbs)	22600 kg (49824 lbs)	14000 kg (30864 lbs)	15300 kg (33730 lbs)	17000 kg (37478 lbs)	19000 kg (41887 lbs)	22500 kg (49603 lbs)

*1 Without steady rest
*2 Max. machining length varies according to the type of chuck.
*3 Spindle speed depends on chuck specifications.
*4 Machine height depends on chip conveyor
*5 CNC panel not included
*6 Chip conveyor weight not included

Standard Machine Specifications

		SLANT TURN 600			SLANT TURN 600M		
		2000U	3000U	4000U	2000U	3000U	4000U
Capacity	Max. swing	Φ1040 mm (Φ40.94")					
	Max. machining diameter	Φ910 mm (Φ35.83")					
	Swing over carriage*1	Φ748 mm (Φ29.45")					
	Max. machining length*2	2009 mm (79.09")	3144 mm (123.78")	4033 mm (158.78")	2044 mm (80.47")	3179 mm (125.16")	4068 mm (160.16")
Travel	X-axis travel	465 mm (18.31")					
	Z-axis travel	2165 mm (85.24")	3300 mm (129.92")	4190 mm (164.96")	2165 mm (85.24")	3300 mm (129.92")	4190 mm (164.96")
Spindle	Chuck size	21"~					
	Spindle speed*3	500 rpm					
	Number of spindle speed ranges	2 steps					
	Spindle nose	A2-20					
	Spindle bore	Φ375 mm (Φ14.76")					
Turret	Turret type	Bolt-on			VDI-type		
	Number of tools	12					
	Tool shank height	□32 mm (□1.25")					
	Boring bar shank diameter	Φ50 mm (Φ2.00") (option : Φ80 mm (Φ3.00"))					
	Turret indexing time	0.5 s / 1 step			0.4 s / 1 step		
Rotary tool spindle	Spindle speed	-			4000 rpm (option : 3000 rpm)		
	Milling capacity	-			Drill : Φ25 mm (Φ0.98"), Endmill : Φ25 mm (Φ0.98"), Tap: M24 (1-8UNC) (Optional tap: M30 (1 1/4-7UNC))		
Feedrate	Rapid traverse rate:X-axis	20000 mm/min (787 IPM)					
	Rapid traverse rate:Z-axis	24000 mm/min (945 IPM)					
Tailstock	Tailstock stroke	2083 mm (82.01")	3218 mm (126.69")	3890 mm (153.15")	2083 mm (82.01")	3218 mm (126.69")	3890 mm (153.15")
	Center	MT-NO.6					
Motors	Spindle motor (40% ED (30 min. rating) /cont. rating)	45 kW (60 HP) / 37 kW (50 HP)					
	Milling spindle motor (4 min. / cont. rating)	-			7.5 kW (10 HP)/ 1.5 kW (2 HP) (Option 11 kW (15 HP)/ 7.5 kW (10 HP))		
	Coolant pump motor	0.52 kW					
Power requirement	Electrical power (cont. rating)	75.3 kVA					
	Air source	0.5 MPa (73 PSI) 25 L/min (0.88 ft³/min)		0.5 MPa (73 PSI) 35 L/min (1.24 ft³/min)	0.5 MPa (73 PSI) 60 L/min (2.12 ft³/min)		0.5 MPa (73 PSI) 70 L/min (2.47 ft³/min)
Machine size	Machine height*4	2605 mm (102.56")					
	Floor space requirement*5	6965 mm (274.21") × 2440 mm (96.06")	8080 mm (318.11") × 2440 mm (96.06")	9270 mm (364.96") × 2990 mm (117.72")	6965 mm (274.21") × 2440 mm (96.06")	8080 mm (318.11") × 2440 mm (96.06")	9270 mm (364.96") × 2990 mm (117.72")
	Machine weight*6	17800 kg (39242 lbs)	19800 kg (43651 lbs)	23300 kg (51367 lbs)	17800 kg (39242 lbs)	19800 kg (43651 lbs)	23300 kg (51367 lbs)

*1 Without steady rest
*2 Max. machining length varies according to the type of chuck.
*3 Spindle speed depends on chuck specifications.
*4 Machine height depends on chip conveyor
*5 CNC panel not included
*6 Chip conveyor weight not included

Standard and Optional Equipment

		● : Standard ○ : Option - : N / A					
		500	500M	550	550M	600	600M
Machine	18" non thru-hole chuck	○	○	-	-	-	-
	18" thru-hole chuck	○	○	-	-	-	-
	21" non thru-hole chuck	○	○	○	○	-	-
	21" thru-hole chuck	○	○	○	○	○	○
	24" thru-hole chuck	○	○	○	○	○	○
	One set of soft jaws	-	-	-	-	○	○
	One set of hard jaws	-	-	-	-	○	○
	Main spindle motor AC45kW (60HP) 7000 N·m (5163 ft·lbs)	●	●	●	●	●	●
	Rotary-tool spindle speed 4000 rpm, 7.5 kW (10 HP) 95 N·m (70 ft·lbs)	-	●	-	●	-	●
	Rotary-tool spindle speed 3000 rpm, 11 kW (15 HP) 140 N·m (103 ft·lbs)	-	○	-	○	-	○
	Tailstock with manual 2 position quill*1	●	●	●	●	●	●
	Spindle 0.0001°degree increment	-	●	-	●	-	●
	Spindle bore Φ185 mm (Φ7.28") / 1600 rpm	●	●	-	-	-	-
	Spindle bore Φ275 mm (Φ10.83") / 1000 rpm	-	-	●	●	-	-
	Spindle bore Φ320 mm (Φ12.60") / 750 rpm	-	-	○	○	-	-
	Spindle bore Φ375 mm (Φ14.76") / 500 rpm	-	-	-	-	●	●
	Steady rest*2	○	○	○	○	○	○
	Work light	●	●	●	●	●	●
	INTELLIGENT THERMAL SHIELD	●	●	●	●	●	●
Factory	Automatic chuck jaw open /close	○	○	○	○	○	○
Automation	Abosolute position detection	●	●	●	●	●	●
	Auto power off (breaker trip)	●	●	●	●	●	●
	Auto power on / off+warm-up*3	○	○	○	○	○	○
	Operation end buzzer	○	○	○	○	○	○
	Status light (Operation end: yellow)	○	○	○	○	○	○
	Status light (3 colors)	○	○	○	○	○	○
Safety equipment	Chuck open / close confirmation	○	○	○	○	○	○
	Chuck double foot-pedal switch	○	○	○	○	○	○
	Hydraulic pressure interlock	●	●	●	●	○	○
	Operation door inetrlock with lock-switch	●	●	●	●	●	●
Coolant / chip disposal	Overload detection system	○	○	○	○	○	○
	Coolant system	●	●	●	●	●	●
	Fully enclosed chip and coolant cover	●	●	●	●	●	●
	Mist collector (LOSMA G2000)	○	○	○	○	○	○
	High-power coolant (1.1 kW (1.5 HP))	○	○	○	○	○	○
	High-power coolant (2.2 kW (3 HP) / 50 Hz, 2.2 kW (3 HP) / 60 Hz)	○	○	○	○	○	○
	Magnum coolant	○	○	○	○	○	○
	Preparation for magnum coolant	○	○	○	○	○	○
	Chip conveyor side disposal (Hinge)	○	○	○	○	○	○
	Chip conveyor (CONSEP 2000WS)*1	○	○	○	○	○	○
Tooling	Chip bucket (swing type)	○	○	○	○	○	○
	Standard tooling package	●	●	●	●	●	●
Others	One set of manuals	●	●	●	●	●	●
	Additional set of manuals	○	○	○	○	○	○
	One set of adjusting tools	●	●	●	●	●	●

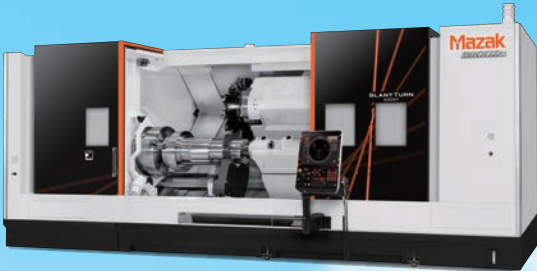
*1 N/A chucker
*2 Option for 2000U/3000U/4000U. Double base steady rest is optionally available for 4000U.
*3 Standard equipment with MAZATROL SmoothG

Above specifications are for North American market.
Standard and optional equipment vary by market.

Environmentally Friendly

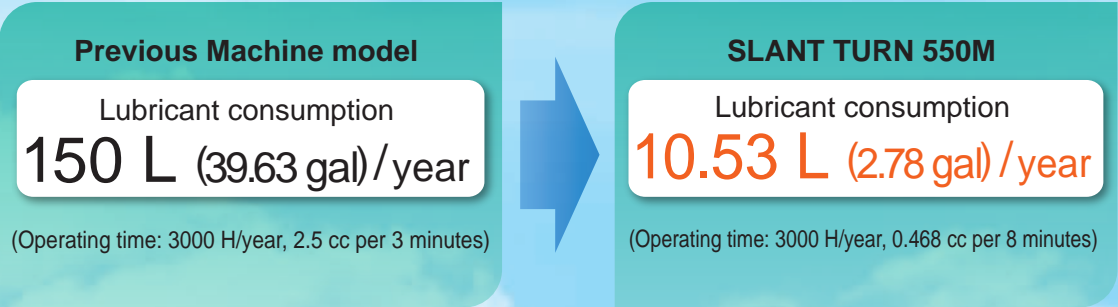
Designed with environmental considerations

The environment and our impact on natural surroundings have always been important concerns of Yamazaki Mazak. LED worklight is standard equipment. The chip conveyor automatically stops operation 5 minutes after cycle completion for reduced electrical power consumption.



SLANT TURN 550M (2000U)

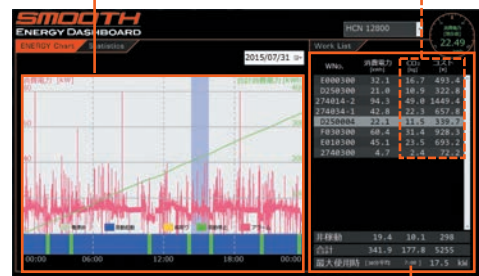
eco-friendly



Energy Dashboard (MAZATROL SmoothG) OPTION

The Energy Dashboard provides a convenient visual monitoring of Electrical power consumption and analysis.

Electrical power consumption displayed on graph Display approximate CO₂ emission and electrical power cost



Energy consumption by workpieces

Process screen display

- Total Electrical power consumption (of workpiece in operation)
- Current Electrical power consumption



Total Support

Mazak Global Support Network

The worldwide production base and the worldwide network of more than 70 Technology Centers and Technical Centers provides technical support for higher productivity and timely service.



Fast Spare Parts Delivery

To consistently achieve high machine up-time for the maximum performance, it is imperative that spare parts are available as quickly as possible when they are needed. The World Parts Center is designed to supply spare parts worldwide 24 hours a day, 365 days per year. The World Parts Center works closely with our regional parts centers all over the world to ensure that they are properly stocked to support the installed base of machines in each region.



Technology Centers and Technical Centers

Yamazaki Mazak has established more than 30 Technology Centers and 40 Technical Centers in more than 20 countries. In addition to providing machine demonstrations and introductions to advanced technology and concepts, our Technology and Technical Centers have been established to provide opportunities for our customers to learn how to improve productivity with their machine tools after they have been purchased and installed. The Technology and Technical Centers are the local bases for our team of highly skilled service engineers that provide service support to customers wherever their manufacturing facilities are located.



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