SMOOTH
TECHNOLOGY

Mega Turn
500/600
SERIES

500	500L
500M	500ML
600	600L
600M	600ML

Advanced features of the MAZATROL SmoothG CNC

Touch screen operation similar to your smartphone/tablet

PC with Windows® 8 embedded OS

Fastest CNC in the world with latest hardware and software for unprecedented speed and precision

Easy conversational programming of multiple-surface machining

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

MTConnect® ready for convenient networking

Easily configure machine parameters for different workpiece materials and application requirements

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

Fastest spindle speed and traverse rate in its class

Integral spindle/motor for unsurpassed performace in the machining of large workpieces

500, 500M, 500L, 500ML		600, 600M, 600L, 600ML	
Chuck size (output):	12"/15"/18"	Chuck size (output):	18"/21"/24"
Output:	26 kW (35 hp)	Output:	30 kW (40 hp)
Max. speed	3000 rpm	Max. speed	2200 rpm
Max. Weight*:	500 kg (1100 lbs)	Max. Weight*:	700 kg (1500 lbs)
* Chuck weight included		* Chuck weight included	

Fastest rapid traverse in its class X/Z axes 30 m/min (1181 IPM)
* Large swing for reduced fixture interference.

Max. swing:	ø700 mm (ø27.56")
Max. machining diameter:	ø500 mm (ø19.69") (500 Series)
	ø630 mm (ø24.75") (600, 600L)
	ø600 mm (ø23.62") (600M, 600ML)

Optional ATC system eliminates boring bar interference

INTELLiGENT MACHiNE®

Innovative support for operators

ergonomics

Ease of operation

eco-friendly

Designed with environmental considerations

MEGA TURN 500M (MAZATROL SmoothG)
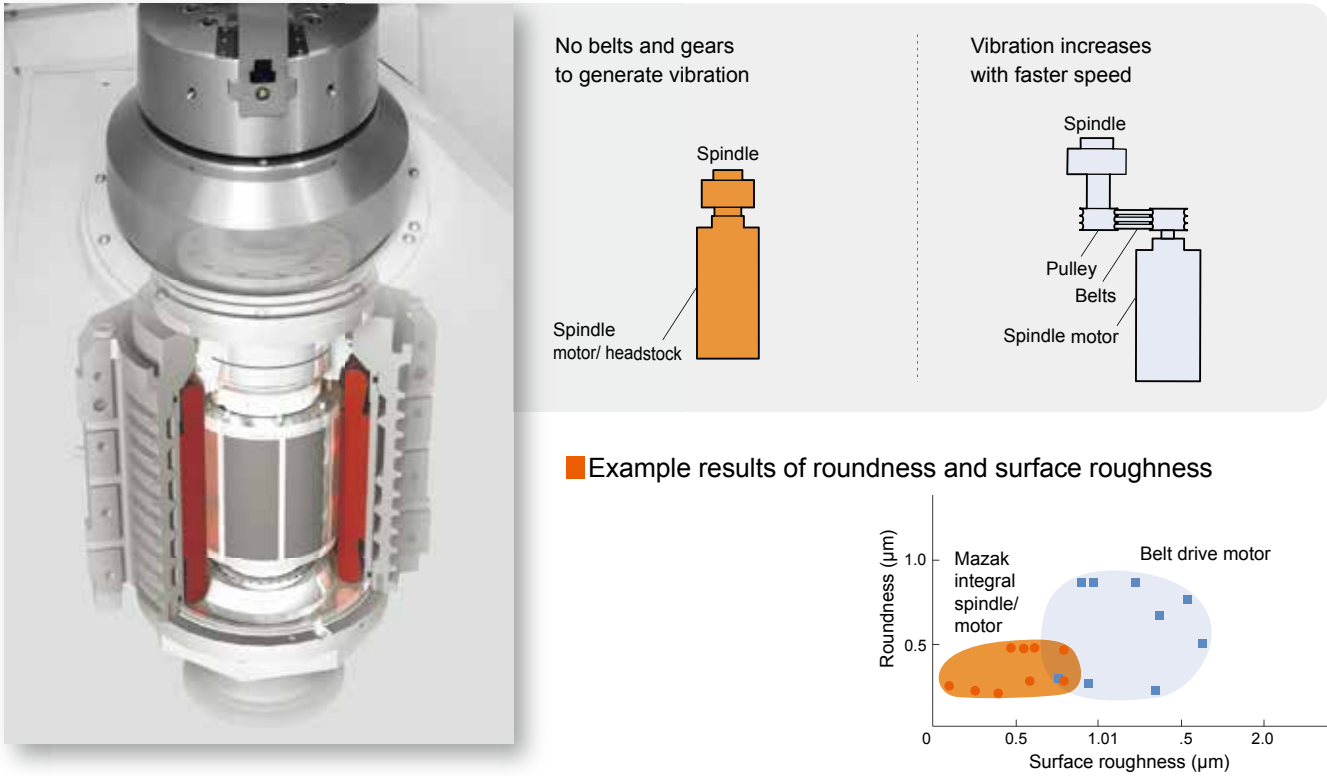Shown with optional status light and ATC
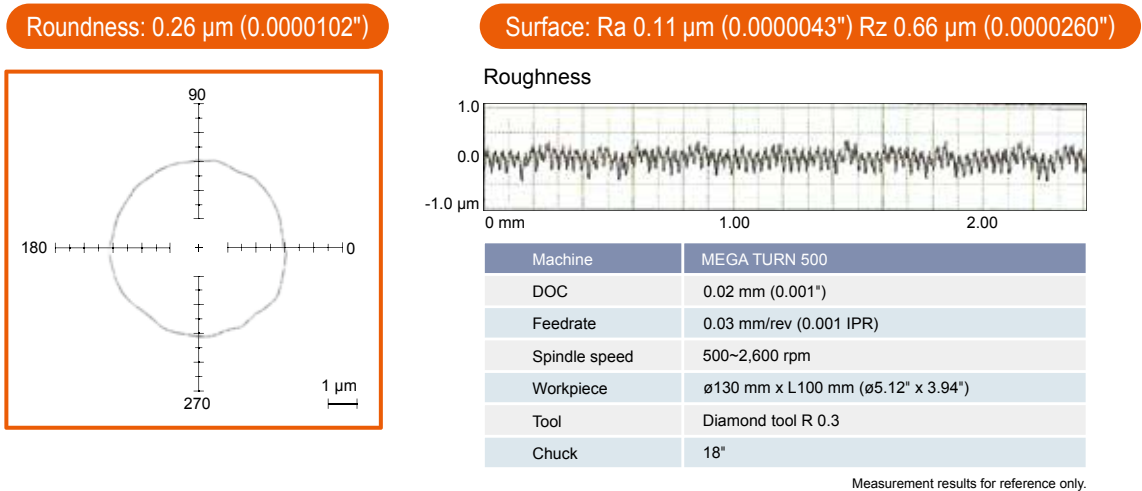
MegaTurn 500/600 series

Higher Productivity & Accuracy

Rigid integral spindle/motor for unsurpassed machining performance

Based on its design, vibration is minimized during high-speed operation to ensure exceptional surface finishes.

No belts and gears to generate vibration

Spindle

Spindle motor/ headstock

Vibration increases with faster speed

Spindle

Pulley
Belts

Spindle motor

■ Example results of roundness and surface roughness

Roundness (µm)

Mazak integral spindle/ motor

Belt drive motor

Surface roughness (µm)

Integral spindle/motor ensures micron control high-accuracy surface finish

Roundness: 0.26 µm (0.0000102")

90

180 | 0

270

1 µm

Surface: Ra 0.11 µm (0.0000043") Rz 0.66 µm (0.0000260")

Roughness

1.0
0.0
-1.0 µm

0 mm   1.00   2.00

Machine	MEGA TURN 500
DOC	0.02 mm (0.001")
Feedrate	0.03 mm/rev (0.001 IPR)
Spindle speed	500~2,600 rpm
Workpiece	ø130 mm x L100 mm (ø5.12" x 3.94")
Tool	Diamond tool R 0.3
Chuck	18"

Measurement results for reference only.

Powerful cutting capability for high productivity

High-torque integral spindle/motor and high-rigidity 12-position drum turret for heavy duty machining of large workpieces

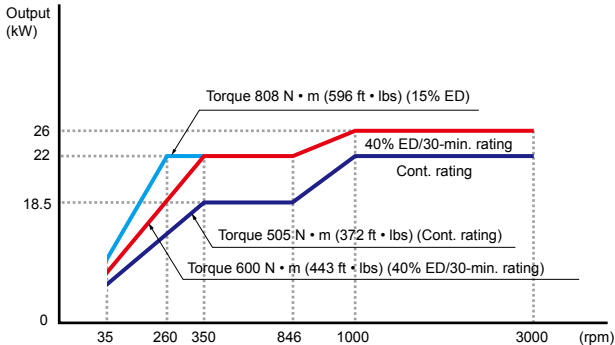| O.D. depth of cut 7.5 mm (0.3")	
Workpiece	ø250 mm x L270 mm (ø9.84" x L10.63"), S45C
Cutting speed	150 mm/min (492.13 SFM) (spindle speed = 203 rpm)
DOC	7.5 mm (0.3")
Feedrate	0.7 mm/rev (0.028 IPR)

Heavy duty O.D. cutting	
Workpiece	ø600 mm x L240 mm (ø23.62" x L9.45")
Cutting speed	150 mm/min (492.13 SFM) (spindle speed = 81 rpm)
DOC	3.5 mm (0.14")
Feedrate	0.35 mm/rev (0.014 IPR)

Example cutting conditions. For reference only.

MEGA TURN 500, 500L, 500M, 500ML
3000 rpm spindle

Spindle output	26 kW (35 HP) [40% ED/30-min. rating]
	22 kW (30 HP) [Cont. rating]
Max. torque	808 N · m (596 ft · lbs) (15% ED)
Max. loading capacity[*1]	500 KG (1100 lbs)

[*1] Chuck included

Output (kW)

Torque 808 N • m (596 ft • lbs) (15% ED)

40% ED/30-min. rating
Cont. rating

26
22
18.5

Torque 505 N • m (372 ft • lbs) (Cont. rating)
Torque 600 N • m (443 ft • lbs) (40% ED/30-min. rating)

0   35 260 350   846   1000   3000 (rpm)

MEGA TURN 600, 600L, 600M, 600ML
2200 rpm spindle

Spindle output	30 kW (40 HP) [40% ED/30-min. rating]
	22 kW (30 HP) [Cont. rating]
Max. torque	1000 N · m (738 ft · lbs) (15% ED)
Max. loading capacity[*1]	700 KG (1500 lbs)

[*1] Chuck included

Output (kW)

Torque 1000 N • m (738 ft • lbs) (15% ED)

40% ED/30-min. rating
Cont. rating

30
22
18.5

Torque 609 N • m (449 ft • lbs) (Cont. rating)
Torque 724 N • m (534 ft • lbs) (40% ED/30-min. rating)

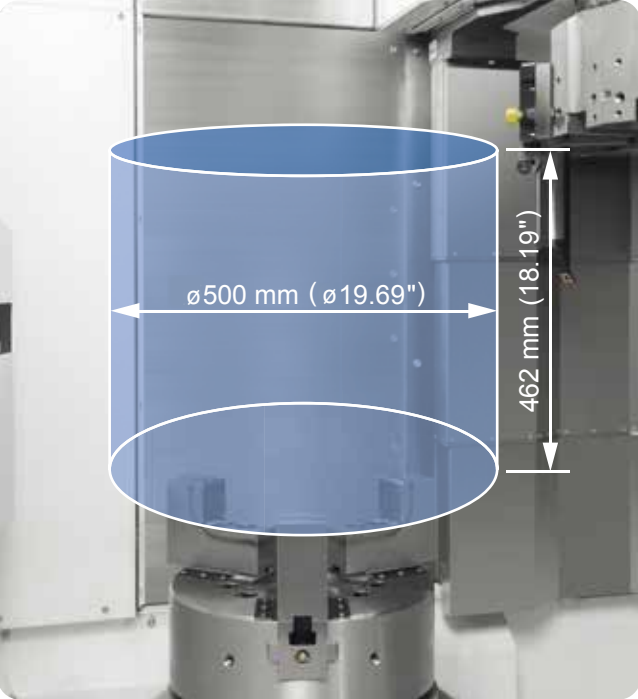0 35 210 290 367 420 500   2000 2200 (rpm)

Higher Productivity & Higher Accuracy
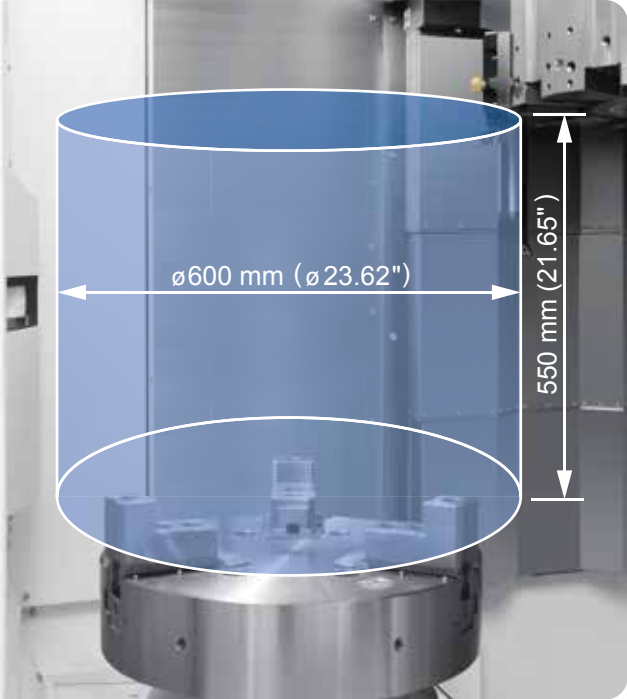
Innovative machine design eliminates interference

The MEGA TURN traveling-column design has no cross-rail interference, providing a larger machining area than that of comparable machines.

MEGA TURN 500, 500L, 500M, 500ML

ø500 mm（ø19.69"）
462 mm (18.19")

Max. workpiece height with 12" non-through hole chuck

MEGA TURN 600, 600L, 600M, 600ML

ø600 mm（ø23.62"）
550 mm (21.65")
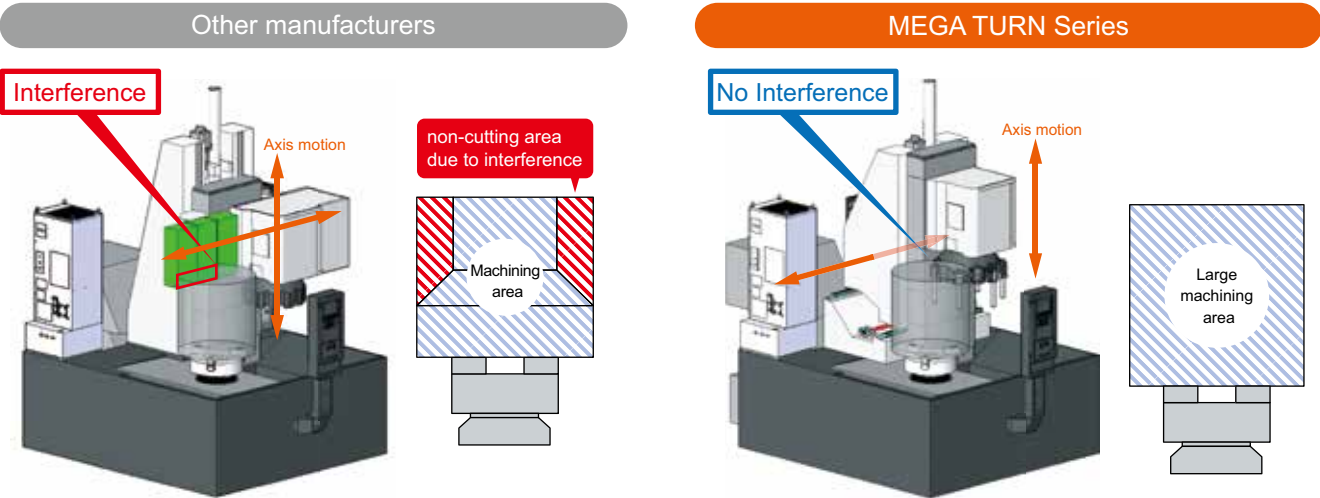
Max. workpiece height with 18" non-through hole chuck

Machine design comparison

The MEGA TURN has no crossrail, offering for a larger machining area than other manufacturers' products.

Other manufacturers

Interference
Axis motion
non-cutting area due to interference
Machining area

MEGA TURN Series

No Interference
Axis motion
Large machining area

Machine design and INTELLIGENT THERMAL SHIELD ensure high accuracy

Linear roller guides

Linear roller guides provide improved positioning accuracy with lower friciton.

Smooth disposal of machined chips

The machine bed's slanted surfaces ensure smooth chip disposal.

MEGA TURN 500 (MAZATROL SmoothG)
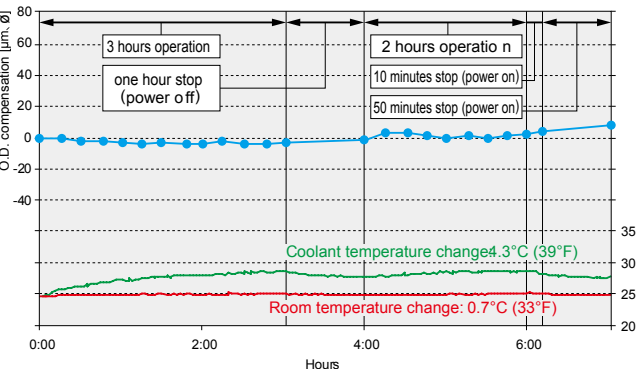Shown with optional status light and ATC

ITS+

Heat Displacement Control
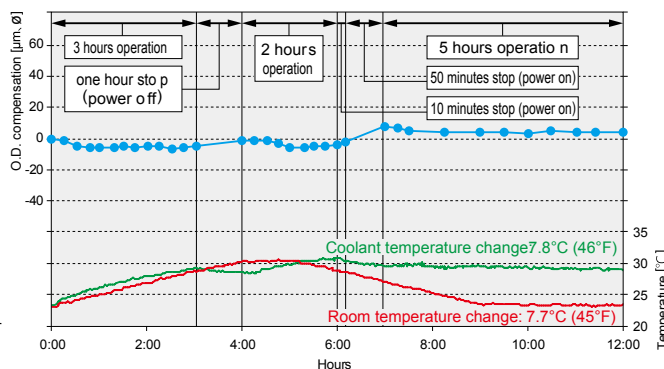INTELLIGEN T THERMAL SHIELD

The INTELLIGENT THERMAL SHIELD is an automatic compensation system for room temperature changes that realizes enhanced continuous machining accuracy. MAZAK has performed extensive testing in a variety of temperature-controlled environments and has used the results to develop a control system that compensates automatically for temperature changes in the machining area.

MEGA TURN 600M

① Constant room temperature

3 hours operation
one hour stop (power off)
2 hours operatio n
10 minutes stop (power on)
50 minutes stop (power on)

Coolant temperature change4.3℃ (39°F)
Room temperature change: 0.7℃ (33°F)

② Room temperature change (8C°)

3 hours operation
one hour sto p (power o ff)
2 hour s operation
5 hours operatio n
50 minutes stop (power on)
10 minutes stop (power on)

Coolant temperature change7.8℃ (46°F)
Room temperature change: 7.7℃ (45°F)

Higher Productivity

12-position drum turret for heavy-duty machining

12-position drum turret
(MEGA TURN 500, 500L, 600, 600L)

Number of tools	12 tools (Bolt-on tool holder)
Turning and facing tool shank size	□25 mm (1") (Optional □32 mm (1.25"): 600, 600S only)
Boring bar shank diameter	ø50 mm (ø2")
Tool selection method	Shortest path, random selection Manual
Turret indexing time	0.3 sec./1 step

12-position bolt-on turret with rotary tools
(MEGA TURN 500M, 500ML, 600M, 600ML)

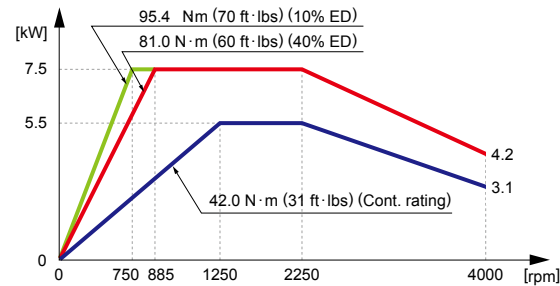|	
Number of tools	12 tools (Bolt-on tool holder)
Turning and facing tool shank size	□25 mm (1") (Optional □32 mm (1.25"): 600, 600S only)
Boring bar shank diameter	ø50 mm (ø2")
Tool selection method	Shortest path, random selection Manual
Turret indexing time	0.3 sec./1 step

Milling performance
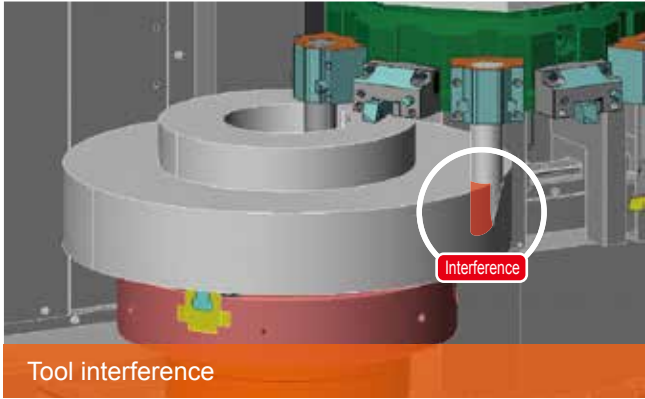
- High-power 7.5 kW (10 HP) milling spindle
- High-accuracy C-axis positioning
- C-axis contouring

Milling spindle speed	4000 rpm
Milling spindle output	AC 7.5 kW (10 HP) [10% ED] AC 5.5 kW (7.4 HP) [Cont. rating]
Max. torque	95.4 N·m (70 ft·lbs) [10% ED]
Milling capacity	Drill	ø25 mm (ø1")
	Endmill	ø25 mm (ø1")
	Tap	M24 (1-8 UNC)

Graph:
- 95.4 Nm (70 ft·lbs) (10% ED)
- 81.0 N·m (60 ft·lbs) (40% ED)
- 42.0 N·m (31 ft·lbs) (Cont. rating)
- [kW] axis: 7.5, 5.5
- 4.2
- 3.1
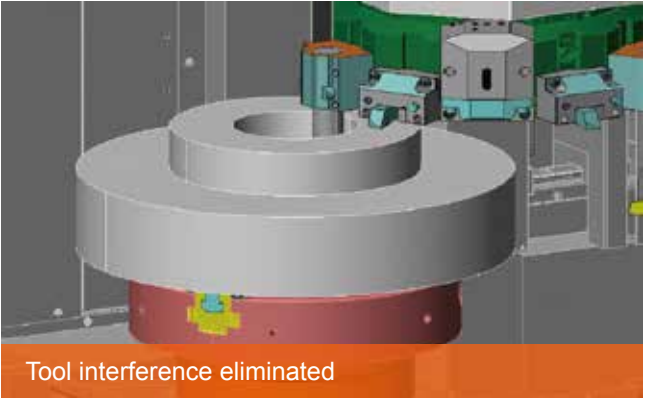- [rpm] axis: 750, 885, 1250, 2250, 4000

Automatic Tool Changer for static tools   (OPTION)

Tool interference

Tool interference eliminated

Automatic tool changer

The boring tools can be stored automatically in the adjacent tool magazine.
(Turning tools only)

The ATC system eliminates interference with adjacent tools. Additionally, by having an increased number of tools within the ATC, redundant tooling and/or a wider assortment of tooling remains resident for additional workpieces. Higher productivity is realized by minimizing tool setup when changing workpieces.
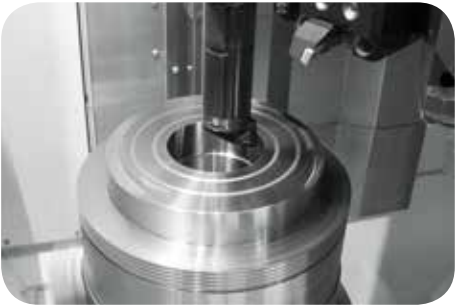
Automatic Tool Changer specifications

Tool Shank	**CAPTO C6**
Number of tools	10 tools
Max. tool length (from gauge line)	240 mm (9.45") (500 series) 280 mm (11.02") (600 series)
Max. tool weight	10 kg (22 lbs)/tool
Tool selection method	Shortest path, random selection
Magazine indexing time (1 pocket)	0.5 sec

Heavy-duty boring

Tool dimension	ø60 mm (ø2.36") L/D = 3
Workpiece	ø375 mm x 290 mm (ø14.76" x 11.42") S45C
Cutting speed	130 m/min
Spindle speed	351 rpm
DOC	6 mm
Feedrate	0.6 mm/rev

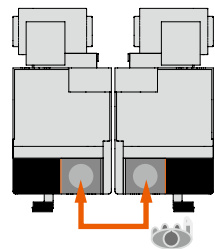Example cutting conditions. For reference only.

Higher Productivity

Combine different machine layouts to create efficient and spacing saving cell layouts
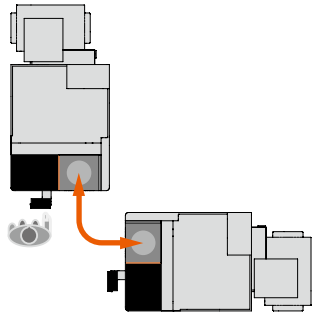
500ML (Mirror-image version) 500M (Standard)

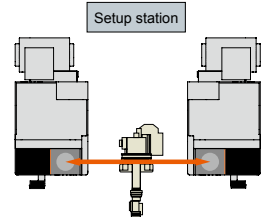MEGA TURN shown with optional ATC

Available machine layouts

Adjacent layout

L-shaped layout

Opposed machines

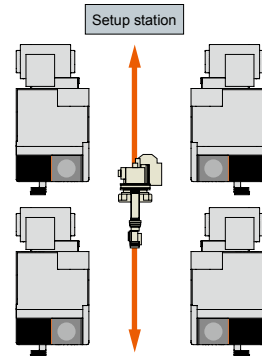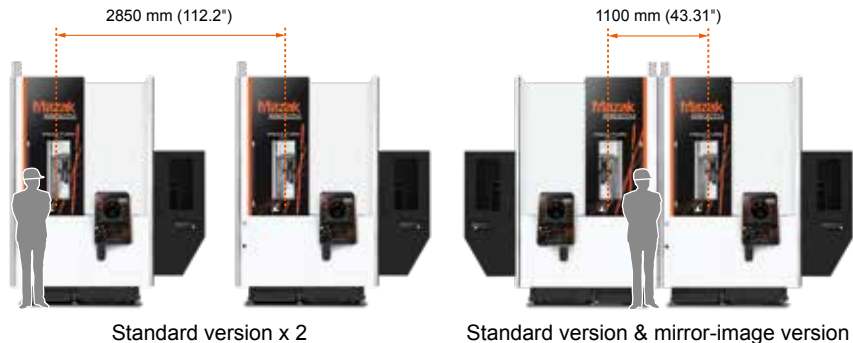### Adjacent layout with robot

Setup station

L-shaped layout with robot

Setup station

Tandem layout with traveling robot

Setup station

Higher efficiency

2850 mm (112.2")   1100 mm (43.31")

Standard version x 2   Standard version & mirror-image version
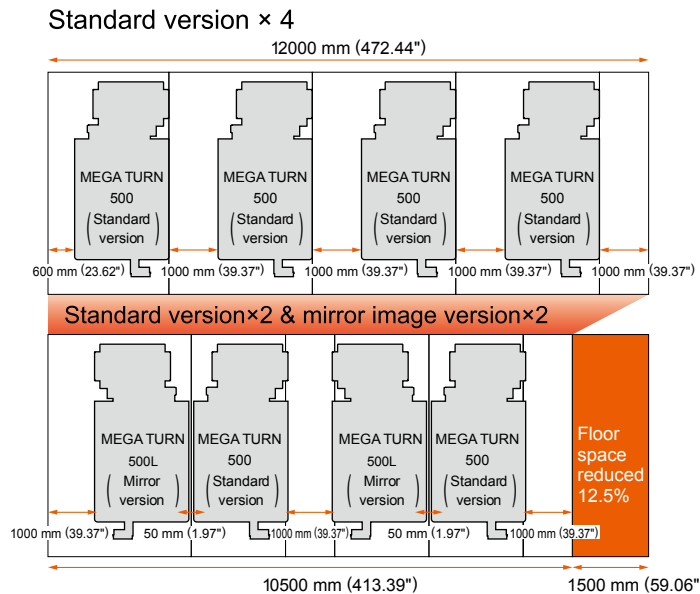
Distance covered by operator is reduced 61% to ease transfer of workpieces from machine to machine.

Space saving design

Standard version × 4

12000 mm (472.44")

| MEGA TURN 500 (Standard version) | MEGA TURN 500 (Standard version) | MEGA TURN 500 (Standard version) | MEGA TURN 500 (Standard version) |

600 mm (23.62") 1000 mm (39.37") 1000 mm (39.37") 1000 mm (39.37") 1000 mm (39.37")

Standard version×2 & mirror image version×2

| MEGA TURN 500L (Mirror version) | MEGA TURN 500 (Standard version) | MEGA TURN 500L (Mirror version) | MEGA TURN 500 (Standard version) | Floor space reduced 12.5% |

1000 mm (39.37") 50 mm (1.97") 1000 mm (39.37") 50 mm (1.97") 1000 mm (39.37")

10500 mm (413.39")   1500 mm (59.06")

Floor space reduced *12.5% with two standard versions and two mirror-image versions.

*With Automatic Tool Changer

Intelligent Machine

Mazak has developed a variety of functions to improve productivity, accuracy and operator support. Unique technologies incorporate the expertise of veteran machine operators for unsurpassed productivity and higher accuracy.

INTELLIGENT MACHINE®
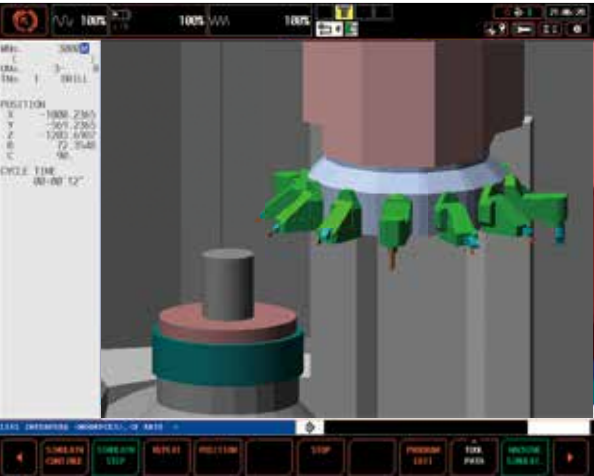
Advanced Intelligent⁺ Functions

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

MEGA TURN 500 (MAZATROL SmoothG)
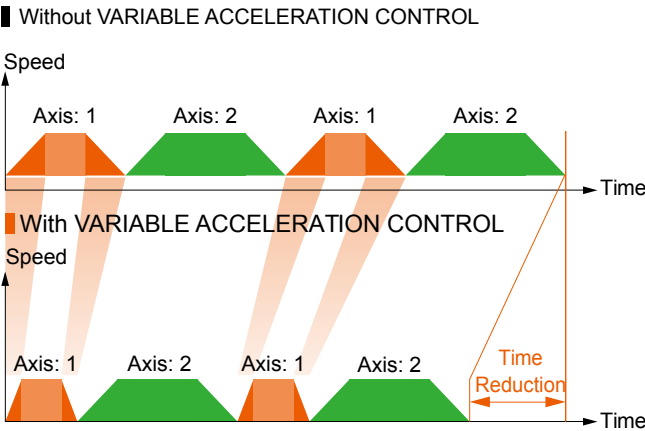Shown with optional status light and ATC

Machine Interference Prevention
INTELLIGENT SAFETY SHIELD

ISS⁺

MAZATROL SMOOTHG

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 to check for interference. If any machine interference occurs, the machine's motion automatically stops, Optionally, this function is available for use during automatic operation.

Variable Acceleration Control Function
VARIABLE ACCERLERATION CONTROL (500M, 500ML, 600M, 600ML)

VAC

VARIABLE ACCELERATION CONTROL is a new function that 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.

▌ Without VARIABLE ACCELERATION CONTROL

▌ With VARIABLE ACCELERATION CONTROL

Seamless Corner Control
SMOOTH CORNER CONTROL

SCC

Improves finished surfaces and reduces cycle times by optimizing acceleration/deceleration when machining corners.

▌ Other systems
Move to next command position after teaching current command position

▌ SMOOTH CORNER CONTROL
Move to next command position within tolerance band

Tolerance band

Comprehensive Maintenance Monitor
INTELLIGENT MAINTENANCE SUPPORT

IMS⁺

Useful infomation to improve preventive maintenance and prevent unexpected machine downtime.

Ergonomics

Ergonomic design for convenient operation

Wide door opening

The wide overhead door opening provides convenient workpiece loading/unloading when using a crane.

Large window

The large front door window allows the operator to monitor machining easily.

Maintenance area

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

META TURN 500 (MAZATROL SnoothG)
Shown with optional status light and ATC

Designed for convenient operation

The operator has excellent access to the table from the front of the machine for convenient workpiece loading/unloading and machine setup.

490 mm (19.29")

Designed for the smooth flow of machined chips

The steeply sloping machine base ensures a smooth flow of machined chips flushed by the cover coolant into the coolant tank. This prevents the accumulation of machined chips that can affect the machine operation.

MAZATROL SMOOTH G

Adjustable CNC touch panel

The operation touch panel can be tilted to the optimal position to ensure ease of operation.

Operation panel width 435 mm(17.13")
Operation panel height 563 mm(22.17")
Center of monitor 1300 mm(51.18") (when tilted 45°)

MAZATROL SMOOTH C

Rotating operation panel

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

14

15

MAZATROL CNC System

The seventh generation MAZATROL CNC system and the core of SMOOTH TECHNOLOGY

Interface with touch operation ensures convenient data processing, programming, confirmation, editing and tool data registration

MAZATROL SMOOTH G

From setup to machining, designed for unsurpassed ease of operation

19" touch panel
Touch panel operation

USB port
Interface for peripheal equipment
USB 1.0+2.0

SD card slot
Transfer programs and tool data

Operation switches
Large switches change color from orange to green when activated

Dials
For selection of frequently used axes and feedrate changes

Process home screens

Five different home screens display the appropriate data in an easy-to-understand manner. Touch icons in each process display for additional screen displays.

Programming

Tool data

Setup

Machining

Maintenance

Pop-up windows

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

Side menu

List menu

Screen keyboard

Ease of Programming

Innovative programming screen links tool path, workpiece shape and EIA code to reduce programming time

QUICK MAZATROL

The 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 displayed immediately so an operator may check for any programming error quickly and easily.

Touch a feature in the 3D model to move quickly to the corresponding section in the MAZATROL program.

3D model in the process list is displayed with updated programming in real time.

3D ASSIST

Import workpiece and coordinate data from a 3D CAD file to a MAZATROL program. No coordinate value inputs are required, which can reduce input errors and time needed for program checking.

CAD model importing

Shape selection

Automatic input to MAZATROL program

QUICK EIA

The program and 3D tool path display are linked to each other. Visibly being able to see toolpath makes it easier to troubleshoot or locate lines of code. The added touchscreen capability makes it easy for the operator to call up the line of code in question.

Select tool path by touching the screen

Calls up the corresponding EIA program line

MAZATROL CNC System

MAZATROL SMOOTHC

Following traditional conversational MAZATROL programming, this system is designed for ease of operation with simplified key input operation and classic display style.

USB interface allows users to transfer program and tool data and connect peripheal equipment

SD card slot enables program and tool data transfer

Press menu keys under the display to go to other pages for program data input and editing

Home screen key goes to the home screen from any display

Compact keypad with unique design for ease of operation

Home screen

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

Comprehensive status display on one screen

Machining
Axes in operation and load on motors

Programming
Simulation time and machining time

Tool data
Status of tool layout

Setup
Status of workpiece coordinate setting

Maintenance
Overview of the status of items requiring maintenance

MAZATROL conversational programming

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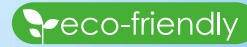

3D machine model

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

Environmentally Friendly

Designed with environmental considerations

eco-friendly

The environment and our impact on it have always been important concerns to MAZAK. To demonstrate this commitment, the factories where MAZAK machine tools are produced are ISO 14001 certified, an international standard confirming that the operation of our production facilities does not adversely affect the environment.

To help ensure our customers protect our natural surroundings and conserve power, LED worklights are standard equipment while the chip conveyor automatically stops operation five minutes after cycle completion.

Energy Dashboard (MAZATROL Smooth G) OPTION

The energy dashboard provides a convenient visual monitoring of energy consumption and graphical analysis.

Energy consumption displayed on graph

Display approximate CO_2 emission and electrical power cost

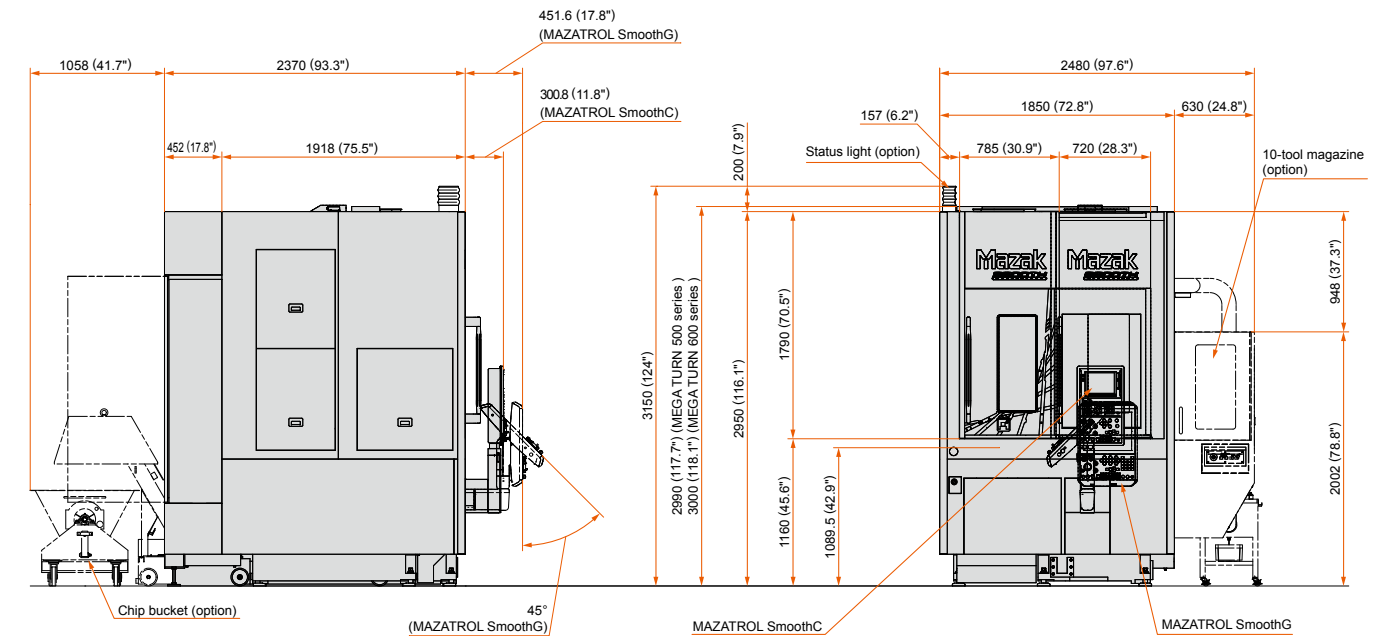Energy consumption by workpieces

Process screen display

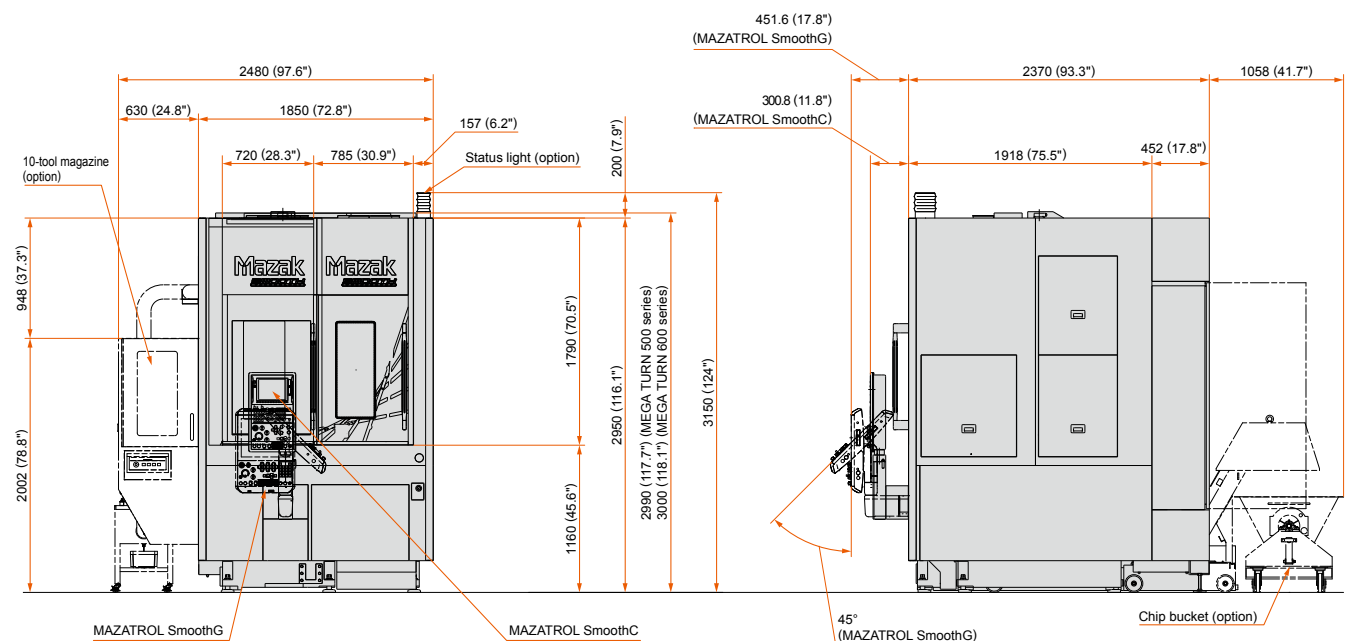• Total energy consumption (of workpiece in operation)
• Current energy consumption

MEGA TURN 500 (MAZATROL Smooth G)
Shown with optional status light and ATC

Machine Dimensions

MEGA TURN 500, 500M, 600, 600M

451.6 (17.8") (MAZATROL SmoothG)
300.8 (11.8") (MAZATROL SmoothC)
1058 (41.7")
2370 (93.3")
452 (17.8")
1918 (75.5")
157 (6.2")
2480 (97.6")
1850 (72.8")
630 (24.8")
Status light (option)
785 (30.9")
720 (28.3")
10-tool magazine (option)
200 (7.9")
948 (37.3")
3150 (124")
2990 (117.7") (MEGA TURN 500 series)
3000 (118.1") (MEGA TURN 600 series)
2950 (116.1")
1790 (70.5")
1160 (45.6")
1089.5 (42.9")
2002 (78.8")
Chip bucket (option)
45° (MAZATROL SmoothG)
MAZATROL SmoothC
MAZATROL SmoothG

MEGA TURN 500S, 500MS, 600S, 600MS

451.6 (17.8") (MAZATROL SmoothG)
300.8 (11.8") (MAZATROL SmoothC)
2480 (97.6")
630 (24.8")
1850 (72.8")
157 (6.2")
10-tool magazine (option)
720 (28.3")
785 (30.9")
Status light (option)
2370 (93.3")
1058 (41.7")
1918 (75.5")
452 (17.8")
200 (7.9")
948 (37.3")
2002 (78.8")
1790 (70.5")
2950 (116.1")
2990 (117.7") (MEGA TURN 500 series)
3000 (118.1") (MEGA TURN 600 series)
3150 (124")
1160 (45.6")
MAZATROL SmoothG
MAZATROL SmoothC
45° (MAZATROL SmoothG)
Chip bucket (option)

MAZATROL SmoothG Specifications

	MAZATROL	EIA
Number of controlled axes	Simultaneous 3 axes	
Minimum input increment	0.0001 mm, 0.00001 inch, 0.0001 deg	
High-speed, high-precision control	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 (time/rotation), Rapid traverse override, Cutting feed override, GO speed variable control, Feedrate clamp, Variable acceleration/deceleration control	Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Inverse time feed, Dwell (time/rotation), Rapid traverse override, Cutting feed override, GO speed variable control, Feedrate clamp, Time constant changing for G1, Variable acceleration/deceleration control
Program registration	Max. number of programs: 960, Program storage: 2MB, Program storage expansion: 8MB*, Prgoram storage expansion: 32MB*	
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, Tool 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 compensation	G0/G1 independent backlash compensation, Pitch error compensation	
Protection functions	Emergency stop, Interlock, Stroke check before traveling, Barrier, INTELLIGENT SAFETY SHIELD (manual mode), INTELLIGENT SAFETY SHIELD (automatic mode)*	
Automatic operation mode	Memory operation	Memory operation, Tape operation, MDI operation, Ethernet operation*
Automatic operation mode	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, Collationstop, Machine lock
Manual measuring functions	Tool-setting data teach, Tool length and tip teach, Touch sensor coordinates measurements, Workpiece offset measurement, Tool eye measurement	Tool-setting data teach, Tool length and tip teach, Touch sensor coordinates measurement, Workpiece offset measurement, Tool eye measurement
Automatic measuring functions	Workpiece measurement, Touch sensor orientation confirmation, Tool eye auto tool measurement, Tool breakage detection	
Interface	PROFIBUS-DP*, Ethernet I/P*, CC-Link*	
Card interface	SD card interface, USB	
Ethernet	10M/100M/1Gbps	

*: Option

MAZATROL SmoothC Specifications

	MAZATROL	EIA
Number of controlled axes	Simultaneous 3 axes	
Minimum input increment	0.0001 mm, 0.00001 inch, 0.0001 deg	
High-speed, high-precision control	VAC, 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 (time/rotation), Rapid traverse override, Cutting feed override, GO speed variable control, Feedrate clamp, Variable acceleration/deceleration control, Constant control for GO tilting*	Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Inverse time feed, Dwell (time/rotation), Rapid traverse override, Cutting feed override, GO speed variable control, Feedrate clamp, Time constant changing for G1, Variable acceleration/deceleration control, Constant control for GO tilting*
Program registration	Max. number of programs: 960, Program storage: 2MB, Program storage expansion: 8MB*, Prgoram storage expansion: 32MB*	
Control display	Display: 10.4" screen, 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, Tool 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 compensation	G0/G1 independent backlash compensation, Pitch error compensation	
Protection functions	Emergency stop, Interlock, Stroke check before traveling, Barrier	
Automatic operation mode	Memory operation	Memory operation, Tape operation, MDI operation, Ethernet operation*
Automatic operation mode	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, Collationstop, Machine lock
Manual measuring functions	Tool-setting data teach, Tool length and tip teach, Touch sensor coordinates measurements, Workpiece offset measurement, Tool eye measurement	Tool-setting data teach, Tool length and tip teach, Touch sensor coordinates measurements, Workpiece offset measurement, Tool eye measurement
Automatic measuring functions	Workpiece measurement, Touch sensor orientation confirmation, Tool eye auto tool measurement, Tool breakage detection	
Interface	PROFIBUS-DP*, Ethernet I/P*, CC-Link*	
Card interface	SD card interface, USB	
Ethernet	10M/100M/1Gbps	

*: Option

Standard Machine Specifications

		MEGA TURN 500, 500L	MEGA TURN 500M, 500ML	MEGA TURN 600, 600L	MEGA TURN 600M, 600ML
Capacity	Max. swing	ø700 mm (ø27.56")		ø700 mm (ø27.56")	
	Max. machining diameter	ø500 mm (ø19.69")		ø630 mm (ø24.75")	ø600 mm (ø23.62")
	Max. machining height[*1]	462 mm (18.19")		550 mm (21.65")	
	Max. loading capacity[*2]	500 kg (1100 lbs)		700 kg (1500 lbs)	
Stroke	X axis	345 mm (13.5")		345 mm (13.5")	
	Z axis	520 mm (20.375")		520 mm (20.375")	
	Distance from spindle face to turret face	165.5 mm ~ 680.5 mm (6.5" ~ 26.75")		273.5 mm ~ 788.5 mm (10.75" ~ 31")	
Spindle	Chuck size	12", 15", 18" (option)		18", 21", 24" (option)	
	Spindle speed[*3]	3000 rpm		2200 rpm	
	Max. torque	808 N • m (596 ft • lbs)		1000 N • m (738 ft • llbs)	
	Min. indexing abgle increment (C axis)	–	0.0001°		0.0001°
	Spindle nose	A2-11		A2-11	
Turret	Type	12-position drum turret (Bolt-on)		12-position drum turret (Bolt-on)	
	Number of tools	12 tools		12 tools	
	Tool shank (O.D.)	25 mm (1")		25 mm (1") (32 mm (1.25")option)	
	Tool shank (I.D.)	ø50 mm (ø2")		ø50 mm (ø2")	
	Turret indexing time	0.3 sec/1 step		0.3 sec/1 step	
Rotary tool spindle	Spindle speed	–	4000 rpm		4000 rpm
	Max. torque	–	95.4 N • m (70 ft • lbs)		95.4 N • m (70 ft • lbs)
	Max. capability	–	Drill: ø25 mm (ø1") Endmill: ø25 mm (ø1") Tap: M24x3 (1 UNC)		Drill: ø25 mm (ø1") Endmill: ø25 mm (ø1") Tap: M24x3 (1 UNC)
Feedrate	Rapid traverse rate: X axis	30000 mm/min (1181 IPM)		30000 mm/min (1181 IPM)	
	Rapid traverse rate: Z axis	30000 mm/min (1181 IPM)		30000 mm/min (1181 IPM)	
	Rapid traverse rate: C axis	–	75 rpm	–	75 rpm
Motors	Spindle motor (40% ED/30-min. rating/Cont. rating)	26/22 kW (35/30 HP)		30/22 kW (40/30 HP)	
	Milling spindle motor (10% ED)	–	7.5 kW (10 HP)	–	7.5 kW (10 HP)
	Coolant pump motor	0.52 kW (0.7 HP)		5.2 kW (0.7 HP)	
Power requirement	Required power capacity (30-min. rating/Cont. rating)	49.0/43.3 kVA		54.7/43.2 kVA	
	Air supply	0.5 MPa (71 psi) 50 L/min (1.77 ft³/min)	0.5 MPa (71 psi) 50 L/min (1.77 ft³/min)	0.5 MPa (71 psi) 50 L/min (1.77 ft³/min)	0.5 MPa (71 psi) 50 L/min (1.77 ft³/min)
Coolant	Tank capacity[*4]	329 L (87 gal)		329 L (87 gal)	
Machine size	Height	2990 mm (117.72")		3000 mm (118.1")	
	Floor space[*5]	1850 mm X 2370 mm (72.8" x 93.3")		1850 mm X 2370 mm (72.8" x 93.3")	
	Machine weight	9250 kg (20400 lbs)		9800 kg (21600 lbs)	

*1 Max. machining height varies according to the type of chuck
*2 Including chuck weight
*3 Spindle speed depends on chuck specifications.
*4 When Rear-Hinge Chip Conveyer (CT-20) equipped
*5 Control panel and coolant tank dimensions are not included.

Standard and Optional Equipment

●: Standard   ○: Optional   – : N/A

		MEGA TURN 500, 500L	MEGA TURN 500M, 500ML	MEGA TURN 600, 600L	MEGA TURN 600M, 600ML
Machine	Work light	●	●	●	●
	12" non-through-hole chuck NV12	○	○	–	–
	15" non-through-hole chuck NV15	○	○	–	–
	18" non-through-hole chuck NV18	○	○	○	○
	21" non-through-hole chuck NV21	–	–	○	○
	24" non-through-hole chuck NV24	–	–	○	○
	High/low chuck pressure	○	○	○	○
	0.0001° - indexing	–	●	–	●
	C axis	–	●	–	●
Factory Automation	Automatic tool changer CAPTO C6 (10-tool magazine)	○	○	○	○
	Tool eye	●	●	●	●
	Automatic chuck jaws open/close	○	○	○	○
	Chuck jar air blast	○	○	○	○
	Double foot pedal	○	○	○	○
	Automatic front door	○	○	○	○
	Automatic power off	●	●	●	●
	Automatic power ON/OFF and warm-up operation	○[*1]	○[*1]	○[*1]	○[*1]
	Machining end buzzer	○	○	○	○
	Status light (1 color)	○	○	○	○
	Status light (3 colors)	○	○	○	○
	Spindle orient	○	○	○	○
Safety Equipment	Chuck open/close confirmation (when equipped with hydraulic chuck)	●	●	●	●
	Hydraulic pressure interlock	●	●	●	●
	Operator door interlock	●	●	●	●
	Overload detection system	○	○	○	○
Coolant/Chip disposal	Mist collector	○	○	○	○
	Turret air blast	○	○	○	○
	Shower coolant system	●	●	●	●
	High-power coolant 520 W	●	●	●	●
	High-power coolant 1.1 kW	○	○	○	○
	High-pressure coolant system 1.5 MPa	○	○	○	○
	Chip conveyor (Rear discharge) hinge type	○	○	○	○
	Chip conveyor (Rear discharge) CONSEP 2000WS	○	○	○	○
	Chip conveyor (Side discharge) hinge type	○	○	○	○
	Chip bucket	○	○	○	○
NC	Absolute position detection	●	●	●	●
	Robot interface	○	○	○	○
	Detachable manual pulse generator	○	○	○	○
	CNC operation panel raised 300 mm (11.81")	○	○	○	○

*1 Standard equipment with MAZATROL SmoothG
Standard CNC system varies by market
The above specifications are for American market. Standard and optional equipment vary by market.

MEGA TURN SERIES LINEUP

MEGA TURN 500 SERIES

Max. machining diameter	ø500 mm (ø19.69")
Max. workpiece height*	462 mm (18.19")

MEGA TURN 600 SERIES

Max. machining diameter	ø630 mm (ø24.75") (600, 600s)
	ø600 mm (ø23.62") (600M, 600MS)
Max. workpiece height*	550 mm (21.65")

MEGA TURN 900 SERIES

Max. machining diameter	ø920 mm (ø36.2")
Max. workpiece height*	800 mm (31.5")

MEGA TURN 1600 SERIES

Max. machining diameter	ø1650 mm (ø64.96")
Max. workpiece height*	900 mm (35.43")

* Depends on chuck specifications

Mazak

YAMAZAKI MAZAK CORPORATION

1-131 Takeda, Oguchi-cho, Niwa-gun, Aichi-Pref., Japan
TEL: +(81)587-95-1131   FAX: +(81)587-95-3611

www.mazak.com

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