

**MEGA TURN SERIES LINEUP**



**MEGA TURN 500 SERIES**

Max. machining diameter  $\phi$ 500 mm  
Max. workpiece height\* 462 mm



**MEGA TURN 600 SERIES**

Max. machining diameter  $\phi$ 630 mm (600, 600S)  
 $\phi$ 600 mm (600M, 600MS)  
Max. workpiece height\* 550 mm



**MEGA TURN 900 SERIES**

Max. machining diameter  $\phi$ 920 mm  
Max. workpiece height\* 800 mm



**MEGA TURN 1600 SERIES**

Max. machining diameter  $\phi$ 1650 mm  
Max. workpiece height\* 900 mm

\* Depends on chuck specifications

MEGA TURN 900 SERIES



**MEGA TURN 900**  
S E R I E S

900  
900M  
900S  
900MS



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MEGA TURN 900 SERIES SmoothCNC 16.08.3000 E 99J197516E0



# Advanced features of the MAZATROL SmoothC and SmoothG CNC

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

Operation control panel layout and process support home screen designed for unsurpassed ease of operation

CNC system with the essentials for your programming requirements [MAZATROL SmoothC]

Smooth graphical user interface allows operation similar to your smart phone / tablet for unsurpassed ease of operation [MAZATROL SmoothG]

PC with Windows® 8 embedded OS [MAZATROL SmoothG]

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



## MAZATROL SMOOTH C

## MAZATROL SMOOTH G

Standard CNC system varies by market.

# High torque and heavy duty machining



Max. swing / Max. workpiece size  
**ø1000 mm / ø920 mm × 800 mm**  
maximum swing over column is ø 940 mm

**Designed for heavy-duty machining of large work pieces**  
Max. output / **30 kW (40 HP)** <30 min. rating>  
Max. torque / **3655 N·m** <30 min. rating>  
Max. loading capacity / **3000 kg** <Including chuck weight>

**2 pallet changer and automatic tool changer are optionally available for increased productivity**

**Mirror-image version available for multiple machine layouts with smaller floor space requirements**



Innovative support for operators

**ergonomics**

Ease of operation

**eco-friendly**

Designed with environmental considerations



MEGA TURN 900M (MAZATROL SmoothC)  
Shown with optional status light and ATC



MEGA TURN 900 (MAZATROL SmoothG)  
Shown with optional status light and ATC

New generation vertical turning center

# MEGA TURN 900 SERIES

# Higher Productivity

## Powerful cutting capability for high productivity

### High-rigidity spindle for heavy-duty machining of large workpieces



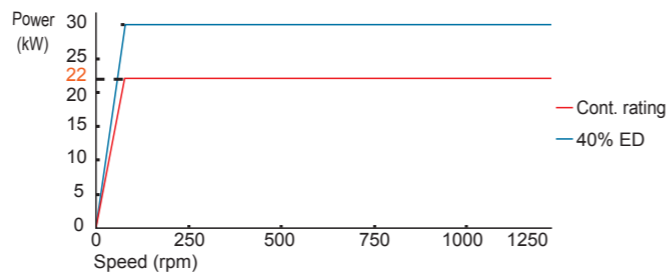
Max. material removal rate : 960 cm<sup>3</sup>/min  
(1.4 times higher than comparable VTLs)  
Material: S45C Spindle speed: 80 rpm Feedrate: 0.8 mm/rev. DOC: 8 mm

Max. workpiece weight: 3000 kg

Output: 30 kW (40 HP) [30 min. rating] Max. Torque: 3655 N·m

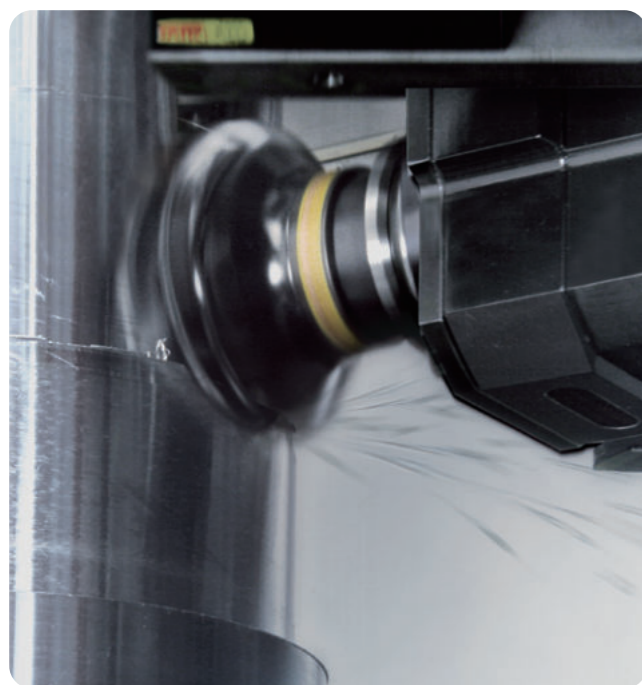
The high rigidity spindle, with maximum output of 30 kW (40 HP) [30 min. rating], has a maximum torque of 3655 N·m for the heavy duty cutting of cast-iron and steel workpieces.

#### MEGA TURN 900 series 1250 rpm spindle



## Powerful rotary tool spindle for improved accuracy and productivity

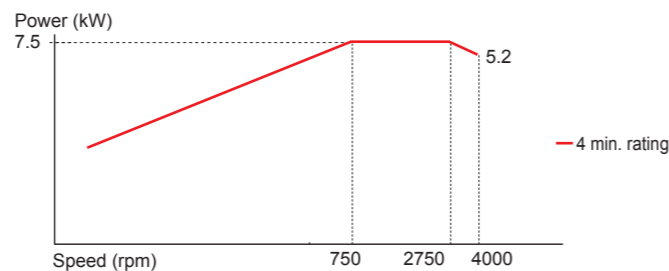
MEGA TURN 900M, 900MS



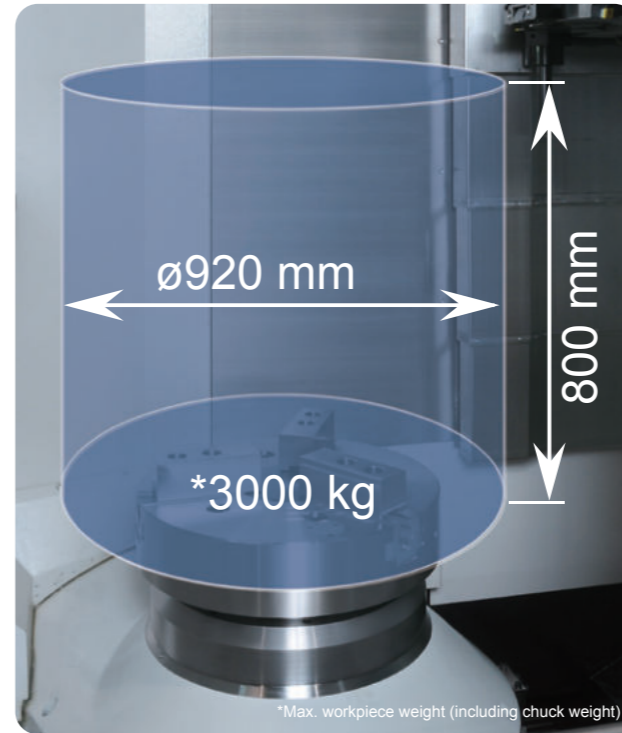
The MEGA TURN 900M/900MS is designed to combine turning and milling operations in a single workpiece setup. As a result, machining accuracy is improved and workpiece setups and handling are reduced as well as in-process time to realize considerable improvement in productivity. C-axis can be indexed in 0.0001° increments.

#### Milling capability

Spindle speed	4000 rpm	
Spindle output	AC 7.5 kW (10 HP) [4 min. rating]	
	AC 1.5 kW (2 HP) [Cont. rating]	
Max. Torque	95 N·m [4 min. rating]	
Milling capability	Drill	ø25 mm
	End mill	ø25 mm
	Tap	M24



## Larger machining area by eliminating interference

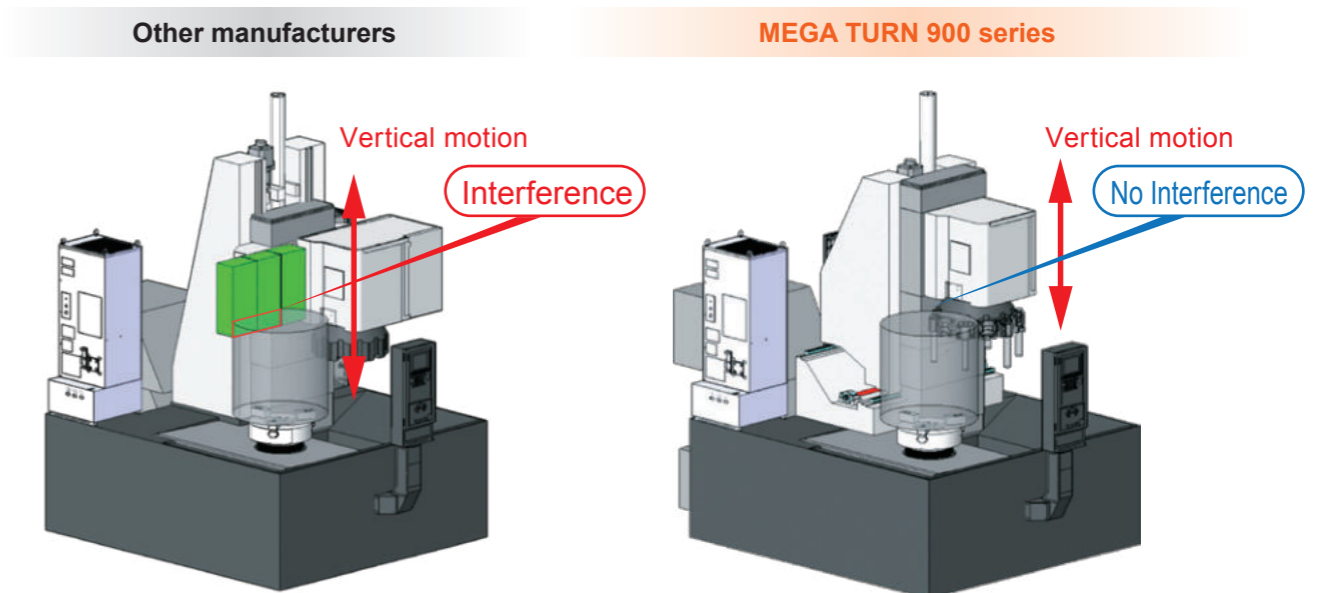


Unique Mazak mechanical design has a maximum workpiece size of  $\Phi 920$  mm  $\times$  800 mm. The machine base is designed for heavy duty cutting by using structural analysis to ensure the maximum rigidity. By utilizing roller linear guides on the X-and Z-axes, not only is high rigidity realized but also smooth cutting is ensured even at high speed feedrates.

Note: Maximum swing is  $\Phi 1000$  mm, maximum swing over column is  $\Phi 940$  mm

### Machine Design Comparison

The MEGA TURN 900 has no cross-rail for a larger machining area

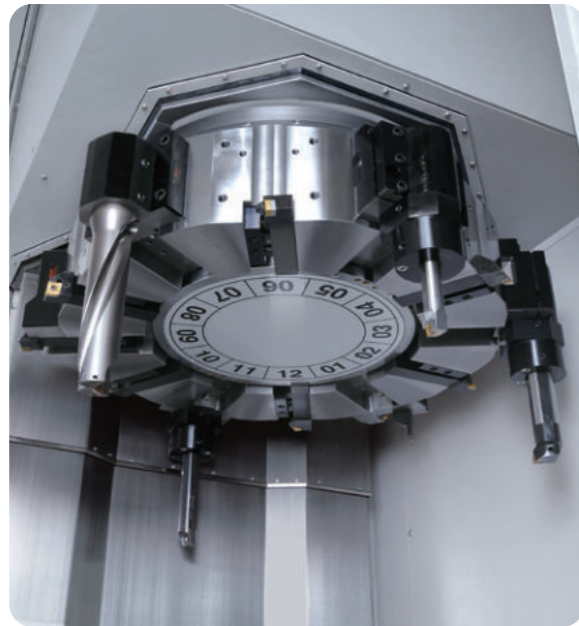


# Higher Productivity

## 12-Position Drum Turret for Heavy-Duty Machining

### 12 Drum Turret

MEGA TURN 900, 900S



The turret is rigidly clamped by 162.79 kN of force on a  $\varnothing 330$  mm high-index coupling for high-performance machining including intermittent cutting. Additionally, the turret can hold 12 tools, and is designed for the minimum workpiece interference with boring bars while turning.

Number of tools	12 tools (bolt-on)
Turning and facing tool shank size	$\square 32$ mm $\times$ 170 mm
Boring bar shank dia.	$\varnothing 50$ mm
Tool selection method	Shortest path, random selection
Turret indexing time	0.4 sec / 1 step
Turret clamping force	162.79 kN

### 12 Drum Turret with Rotary Tools

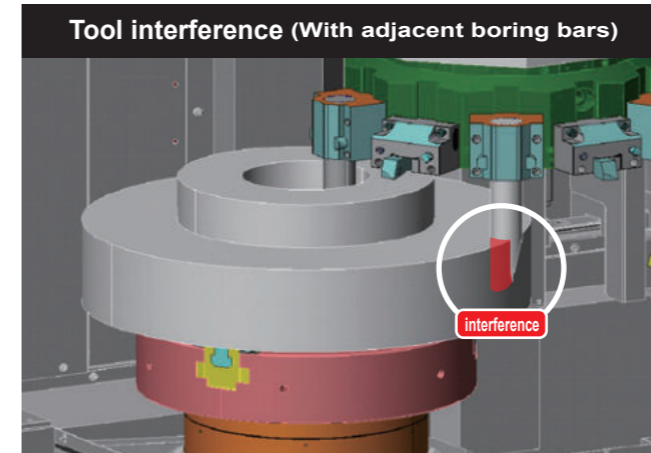
MEGA TURN 900M, 900MS



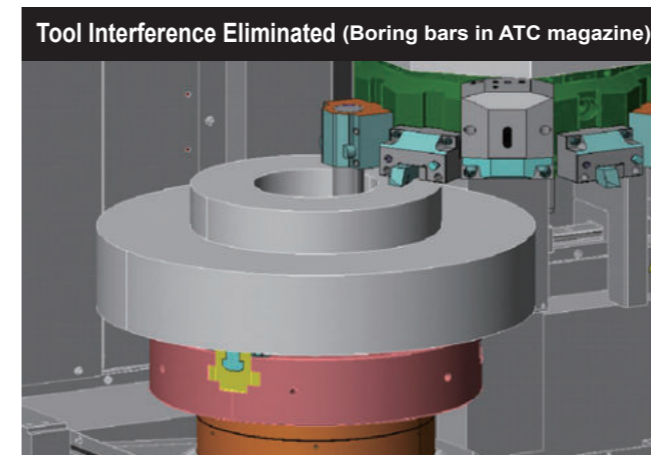
The MEGA TURN 900M, 900MS can combine turning and secondary machining operations in order to efficiently machine large workpieces such as those found in the construction machinery and jet engine industries.

Number of tools	12 tools (VDI type)
Turning and facing tool shank size	$\square 32$ mm $\times$ 170 mm
Boring bar shank dia.	$\varnothing 50$ mm
Tool selection method	Shortest path, random selection
Turret indexing time	0.45 sec / 1 step
Turret clamping force	162.79 kN

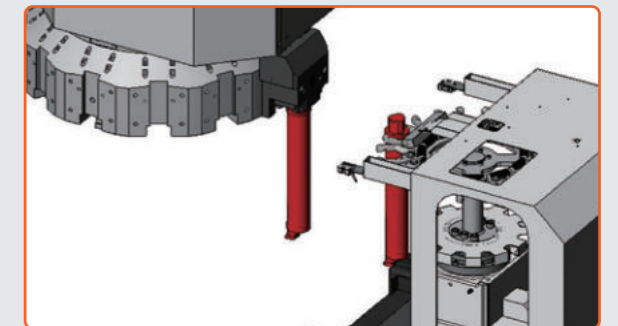
## Automatic Tool Changer for Turning Tools OPTION



The system eliminates interference with adjacent tools for extremely convenient tool setup. By increasing the number of tools that can be stored, permanent set tooling can be used that meets the requirements of a wide variety of workpieces. Higher productivity is realized by minimizing tool setup when changing workpieces.



### Automatic tool changer



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

2 types of the automatic tool changer are available

Tool shank	CAPTO C6	CAPTO C8
Number of tools	12 tools	8 tools
Max. tool length (from gauge line)	410 mm	
Max. tool weight	10 kg	15 kg
Tool selection method	Random selection / shortest path	
Magazine indexing time (1 pocket)	0.8 sec	0.9 sec



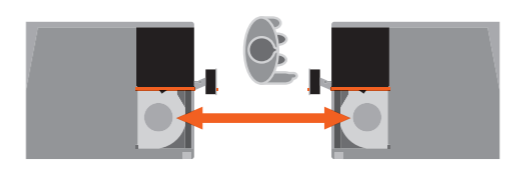
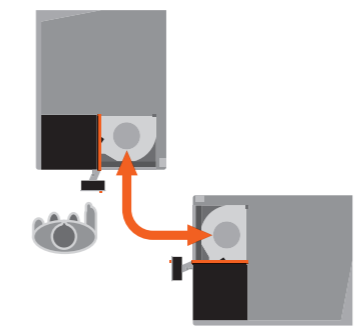
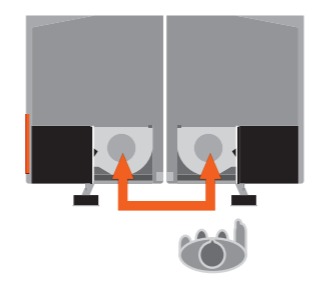
# Higher Productivity

## Different machine layouts by combining standard and mirror-image versions

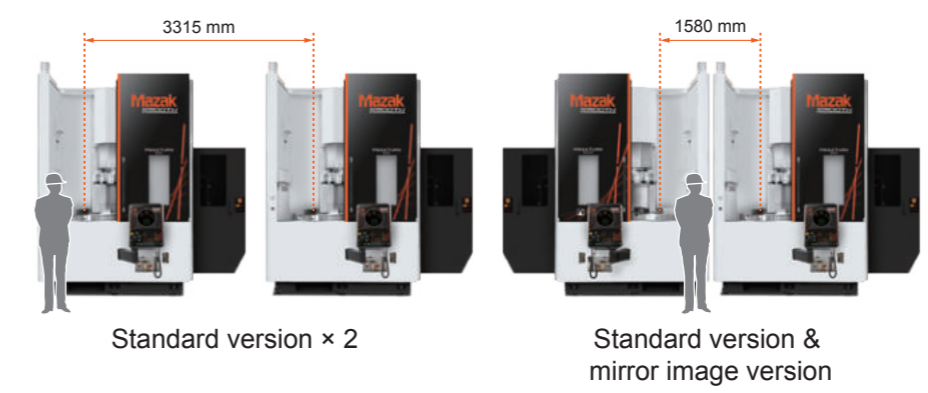
Distance to be covered by operator is reduced when compared to two standard machines. Floor space is also reduced.



### Available machine layouts

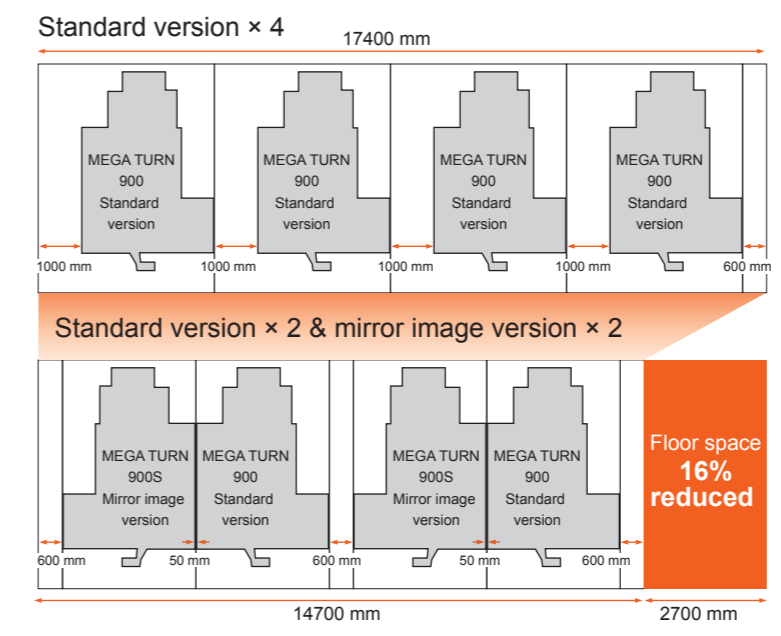


### Higher efficiency



Distance covered by operator is reduced 52% for more convenient transfer of workpieces from machine to machine.

### Minimum floor space



Floor space reduced 16%\* when compared to 2 standard versions and 2 mirror image versions.  
\*With automatic tool changer

# Higher Accuracy

## Positioning accuracy : 2 times better than ISO

MEGA TURN 900 series ensures not only powerful machining but also high accuracy machining.

Unit :  $\mu\text{m}$

		X-axis			Z-axis		
		ISO	Mazak standard	Results	ISO	Mazak standard	Results
Positioning	A	22	11	2.4	32	16	4.8
Unidirectional positioning accuracy	E $\uparrow$	10	5	1	15	7.5	1.6
	E $\downarrow$	10	5	0.9	15	7.5	2.7
Unidirectional positioning repeatability	R $\uparrow$	6	3	1.8	10	5	3.6
	R $\downarrow$	6	3	1.5	10	5	2.7
Reversal Value	B	10	5	0.4	12	6	1.6

The above measured results are for reference only.



Heat Displacement Control

### INTELLIGENT THERMAL SHIELD

ITS+

The INTELLIGENT THERMAL SHIELD is an automatic compensation for room temperature changes, which realizes 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. Changes in the room temperature and compensation data are shown visually.



# Automation

## Two Pallet Changer OPTION



Productivity is increased by the ability to setup the next workpiece during the machining of the current one.

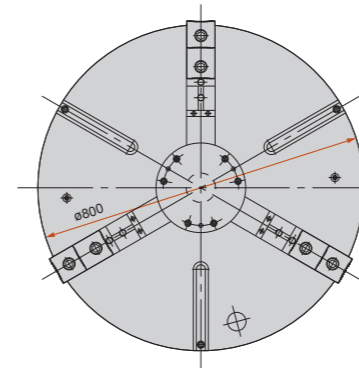
Max. workpiece size	$\phi 920 \text{ mm} \times \text{H}750 \text{ mm}$
Max. workpiece weight (pallet weight included)	1800 kg
Pallet change time	90 sec

Note)  
 \*Max. workpiece height depends on chuck specification  
 \*Specifications are different when equipped with 2 pallet changer  
 \*2 pallet changer is not available for the MEGA TURN 900S 900MS

## Pallet Dimensions (Two Pallet Changer)

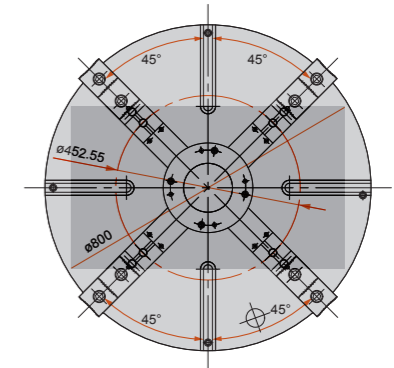
### 3-jaw scroll chuck

Unit : mm



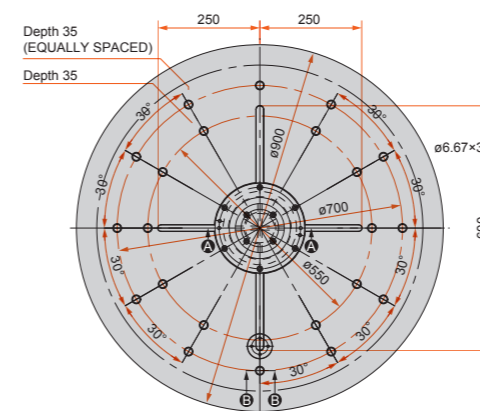
### 4-jaw independent chuck

Unit : mm

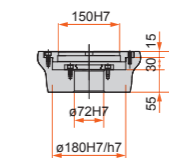


### $\phi 900 \text{ mm}$ pallet

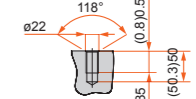
Unit : mm



### Section A-A



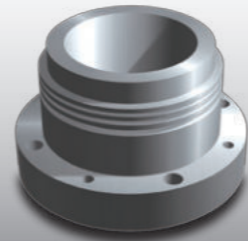
### Section B-B



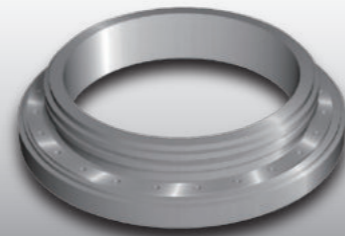
# Applications



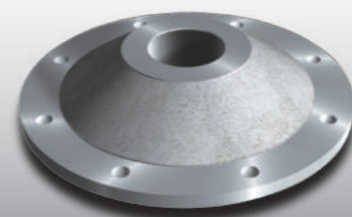
Marine



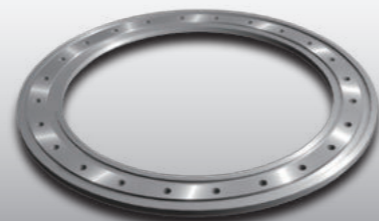
Energy



Construction machinery



Aerospace



# 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.

### Machining



Heat Displacement Control  
**INTELLIGENT THERMAL SHIELD**  
Unique Mazak heat displacement compensation system



Variable Acceleration Control Function  
**VARIABLE ACCELERATION CONTROL (900M,900MS)**

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.



Seamless Corner Control  
**SMOOTH CORNER CONTROL**  
Improved finished surfaces and reduced cycle times by optimized acceleration / deceleration when machining corners.

### Setup

MAZATROL **SMOOTHG**

MAZATROL **SMOOTHG**



Machine Interference Prevention  
**INTELLIGENT SAFETY SHIELD**  
For safe operation  
(This function for use during automatic operation is optionally available.)



Verbal Message System  
**MAZAK VOICE ADVISER**  
Verbal support for machine setup and safe conditions confirmation.

### Maintenance



Comprehensive Maintenance Monitor  
**INTELLIGENT MAINTENANCE SUPPORT**  
Useful information for improved preventative maintenance to prevent unexpected machine downtime.

# Ergonomics

## Ergonomic Design for Convenient Operation

ergonomics

### Tool eye

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.



### Turret access

The turret features excellent accessibility for convenient tool setup.



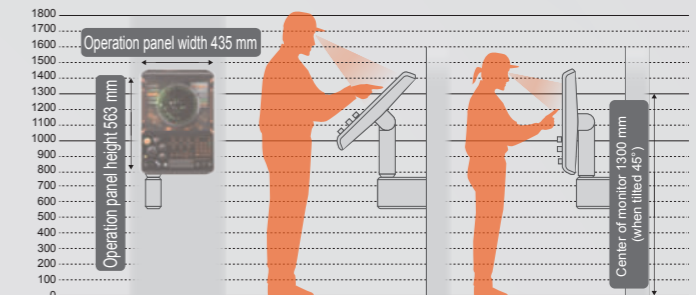
### MAZATROL *SMOOTH C* Rotating operation panel

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



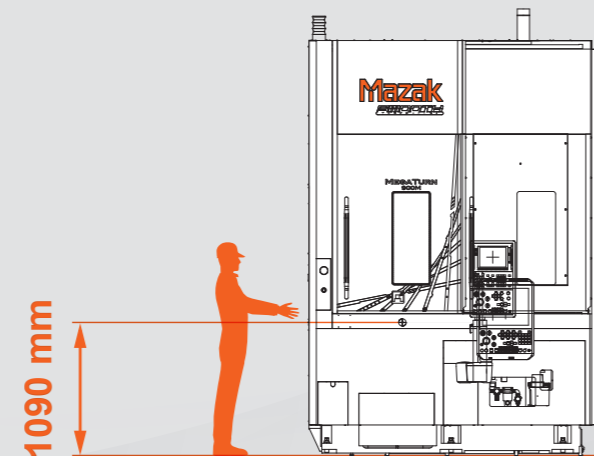
### MAZATROL *SMOOTH G* Adjustable CNC touch panel

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



### Designed for convenient operation

The distance from the spindle nose to the floor is just 1090 mm. As a result, workpiece loading and unloading is extremely convenient.



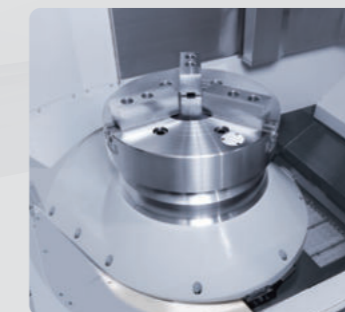
### Color coded cables

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



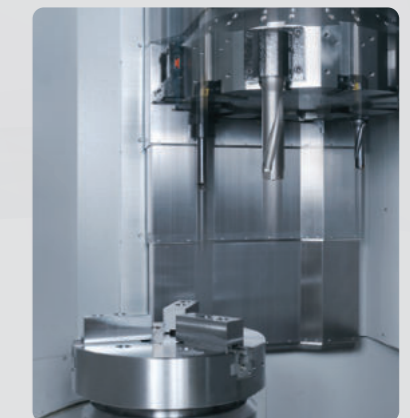
### Designed for the smooth flow of machined chips

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



### Way covers designed for long service life

The unique MEGA TURN series mechanical design includes the way cover design with the minimum number of parts to realize a simplified construction. This ensures convenient maintenance of the wipers to remove jammed machined chips.





# 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 switches

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

Dials

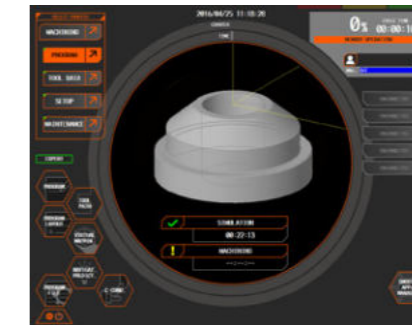
For frequently-used axes selection and  
feedrate changes

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.

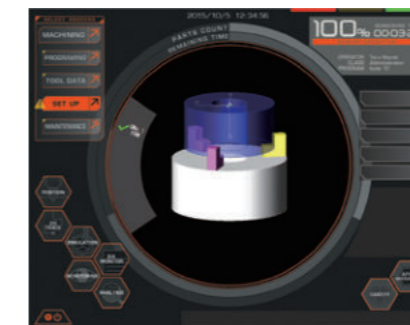
Programming



Tool data



Setup



Machining



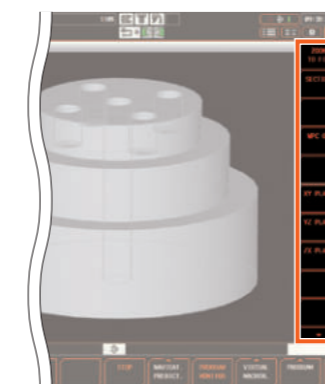
Maintenance



### 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.

Quickly move to the corresponding section in the MAZATROL program by touching a feature in the 3D model.

Unit No.	UNIT	PART	OPT-X	OPT-Z	FIN-X	FIN-Z							
4	BAR	OUT	20.	0.	0.	0.							
SNo.	TOOL	NOM.	No.	PAT.	DEP-1	DEP-2/NUM.	DEP-3	FIN-X	FIN-Z	C-SP	FR	M	M
R1	GENERAL	OUT	1.		0	0.3				100.	0.1		
FIG	PTN	S-CNR	SPT-X	SPT-Z	FPT-X	FPT-Z	F-CHR/S	R/th	RGH				
1	TFR		12.	0.	19.03	3.51							
2	TFR		19.03	3.51	19.03	9.							
Unit No.	UNIT	TURN POS X	TURN POS Y	TURN POS Z	ANGLE C	ANGLE A							
5	INDEX	0.	0.	0.	0.	0.							
Unit No.	UNIT	SHIFT-X	SHIFT-Y	SHIFT-Z	SHIFT-C	SHIFT-A	COORD. th						
6	WPCSHIFT	0.	0.	0.	0.	0.							

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

### 3D ASSIST

Workpiece and coordinates data can be imported from 3D CAD data to a MAZATROL program. No coordinate value inputs are required. Can reduce input errors and time for program checking.

CAD model importing

Shape selection

Automatically input to MAZATROL program

### QUICK EIA

Program, process list and 3D tool path display are linked to each other. Visible search on touch screen can reduce the time for program checking.

selecting tool path by touching the screen.

Moving to the corresponding EIA program line.

```

1: Program Top
2: Thc.2
1 NO010 G28UW0
2 NO020 G53 5
3 NO030 T0101
4 NO040 G96099018
5 NO050 M04S150
6 NO060 G0X160 Z2.
7 NO070 G7105 R1
8 NO080 G71P1000I40U4. W2. F0.25S150M04.
9 NO100 G0X60 S200
10 NO110 G01Z-30 F0.1
11 NO120 G0X120 Z-60 R30
12 NO130 G018-40.
13 NO140 X140 W-10.
14 NO200 G70P1000I40
15 NO210 G28UW0M05
16 M9900 M30
    
```



## MAZATROL SmoothC Specifications

	MAZATROL	EIA
Number of controlled axes	Simultaneous 2 ~ 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 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, 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, 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	10 M / 100 M / 1 Gbps	

\* : Option

## MAZATROL SmoothG Specifications

	MAZATROL	EIA
Number of controlled axes	Simultaneous 2 ~ 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 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, 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, 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	10 M / 100 M / 1 Gbps	

\* : Option

## Standard Machine Specifications

		MEGA TURN 900, 900S	MEGA TURN 900M, 900MS
Capacity	Max. Swing*1	ø 1000 mm	
	Max. machining dia.	920 mm	
	Max. machining height*2	800 mm	
	Max. workpiece weight (including chuck weight)	3000 kgf	
Stroke	X-axis	470 mm	
	Z-axis	876 mm	
	Distance from spindle face to turret face	154 mm ~ 1030 mm	163 mm ~ 1039 mm
Spindle	Chuck size	15"~36"	
	Spindle speed*3	1250 rpm	
	Gear ranges	1-stepless	
	Max. torque	3655 N·m	
	Min. indexing angle increment (C-axis)	—	0.0001°
	Spindle nose	A2-15	
Turret	Type	12 position drum turret (Bolt-on)	12 position drum turret (VDI type)
	Number of tools	12 tools	
	Tool shank height	32 mm	
	Boring bar shank dia.	ø 50 mm	
	Turret indexing time	0.40 sec / 1 step	0.45 sec / 1 step
Rotary tool spindle	Spindle speed	—	4000 rpm
Feedrate	Max. torque	—	95 N·m
	Milling capability	—	Drill: ø 25 mm, Endmill: ø25 mm, Tap: M24×3
Meters	Rapid traverse rate : X-axis	24000 mm/min	
	Rapid traverse rate : Y-axis	24000 mm/min	
	Rapid traverse rate : C-axis	—	20 rpm
Motors	Spindle motor (30 min. rating / Cont. rating)	30 / 22 kW (40 / 30 HP)	
	Milling spindle motor (4 min. rating)	—	7.5 kW (10 HP)
	Coolant pump motor	1.04 kW (1.38 HP)	
Power requirement	Required power capacity (30 min. rating / Cont. rating)	58.9 / 47.4 kVA	
	Air supply	0.5 MPa, 30 L/min (ANR)	0.5 MPa, 50 L/min(ANR)
Coolant	Tank capacity	516 L	
	Machine size	3400 mm	
Machine size	Floor space	2375 mm × 3515 mm	
	Machine weight	14000 kg	

\*1 limitations with X-axis stroke

\*2 Max. machining height varies according to the type of chuck.

\*3 Spindle speed depends on chuck specifications.

## Standard and Optional Equipment

		● : Standard equipment ○ : Option — : N / A			
		900	900S	900M	900MS
Machine	Work light	●	●	●	●
	15"non-through hole with 3-jaw chuck NV-15C1515	○	○	○	○
	18"non-through hole with 3-jaw chuck NV-18C1515	○	○	○	○
	21"non-through hole with 3-jaw chuck NV-21C1515	○	○	○	○
	24"non-through hole with 3-jaw chuck NV-24C1515	○	○	○	○
	28"non-through hole with 3-jaw chuck NV-28C1515	○	○	○	○
	32"non-through hole with 3-jaw chuck NV-32C1515	○	○	○	○
	36"non-through hole with 3-jaw chuck NV-36C1515	○	○	○	○
	24"3-jaw scroll chuck	○	○	○	○
	32"3-jaw scroll chuck	○	○	○	○
	36"3-jaw scroll chuck	○	○	○	○
	24"4-jaw independent chuck	○	○	○	○
	32"4-jaw independent chuck	○	○	○	○
	36"4-jaw independent chuck	○	○	○	○
	Spindle orient	○	○	○	○
0.0001° indexing	—	—	●	●	
Factory automation	2 pallet changer	○	—	○	—
	Automatic tool changer CAPTO C6 (12 tool magazine)	○	○	○	○
	Automatic tool changer CAPTO C8 (8 tool magazine)	○	○	○	○
	Tool eye	●	●	●	●
	Automatic chuck jaw clamp / unclamp	○	○	○	○
	Chuck jaw air blast	○	○	○	○
	High / low chuck pressure	○	○	○	○
	Double foot pedal chuck switch	○	○	○	○
	Automatic front door	○	○	○	○
	Automatic power off	●	●	●	●
	Calendar type automatic power on / off and warm-up operation	○*1	○*1	○*1	○*1
Machining end buzzer	○	○	○	○	
Status light (1 color)	○	○	○	○	
Status light (3 colors)	○	○	○	○	
Safety equipment	Chuck open / close confirmation (when equipped with hydraulic chuck)	●	●	●	●
	Hydraulic pressure interlock	●	●	●	●
	Operator door interlock	●	●	●	●
	Overload detection system	○	○	○	○
Coolant / chip disposal	Coolant system	●	●	●	●
	Mist collector	○	○	○	○
	Turret air blast	○	○	○	○
	Coolant temperature control	○	○	○	○
	High power coolant 1.1 kW (1.2 kW for cover)	●	●	●	●
	1.5 MPa high pressure coolant 2.2 kW (50 Hz) / 2.2 kW (60 Hz) (1.2 kW for cover)	○	○	○	○
	Rear discharge chip conveyor (hinge)	○	○	○	○
	Rear discharge chip conveyor (CONSEP2000WS)	○	○	○	○
Chip bucket	○	○	○	○	
CNC	Absolute position detection	●	●	●	●
	Robot interface	○	○	○	○
	Detachable manual pulse generator	○	○	○	○
	CNC operation panel raised 300 mm	○	○	○	○
	MAZATROL SmoothC	●	●	●	●
	MAZATROL SmoothG	○	○	○	○

\*1 Standard equipment with MAZATROL SmoothG  
Standard CNC system varies by market.