Mazak

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QUICK TURN 300,350 SERIES SmoothCNC 17.05.0 SH 99J199917E1

QUICK TURN 300,350 SERIES

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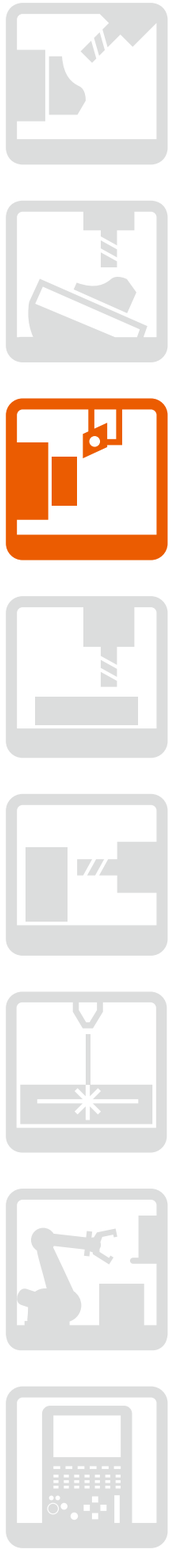


SMOOTH TECHNOLOGY

QUICK TURN 300,350 SERIES

300	350
300MA	350MA
300MB	350MB
300MY	350MY
300MS	350MS
300MSY	350MSY

Mazak

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 SmoothG]

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

PC with Windows®8 embedded OS [MAZATROL SmoothG]

MAZATROL SMOOTH C

MAZATROL SMOOTH G

Standard CNC system varies by market.

- Wide variety of available integral / spindle motor specifications, from standard spindle to high torque spindle for heavy duty machining
- Smooth Mill Drive – Turret rotary tool integral spindle / motor
- Intelligent Functions for unsurpassed ease of operation

INTELLIGENT MACHINE®

Innovative support for operators

ergonomics

Ease of operation

eco-friendly

Designed with environmental considerations

QUICK TURN 350MA (MAZATROL SmoothC)
shown with optional chip conveyor and status light

QUICK TURN turning center series held in high regard by manufacturers around the world since 1981

QUICK TURN 300,350 SERIES

Extensive Series Range

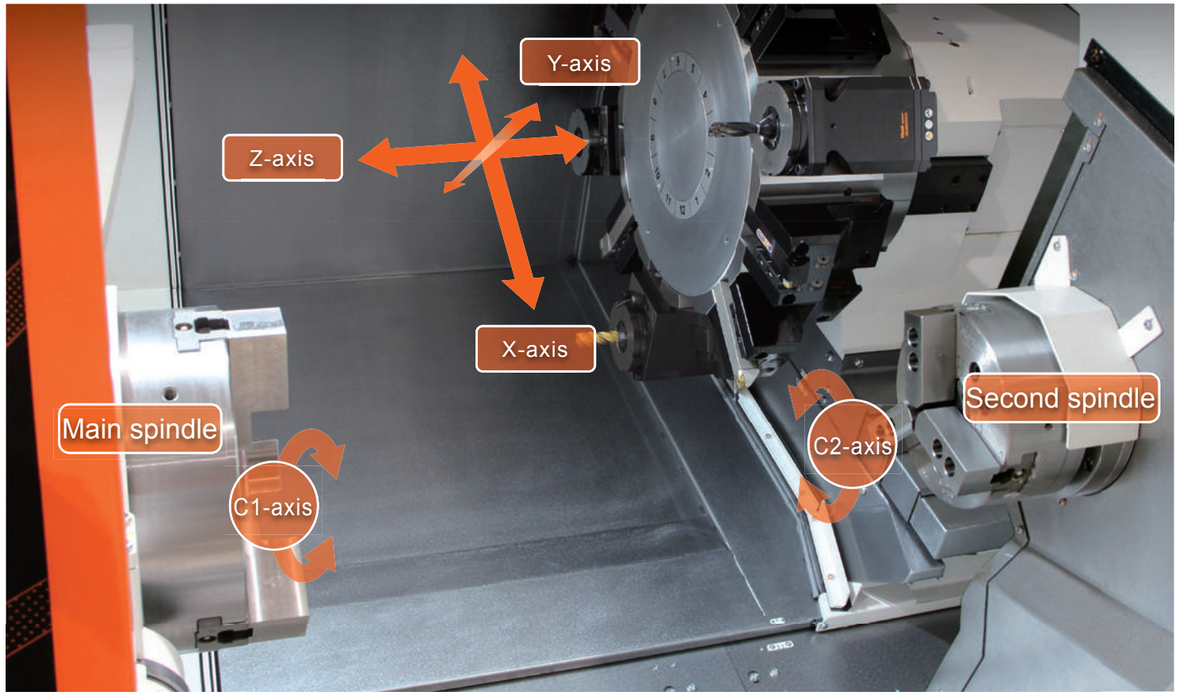
From turning to milling, Y-axis and second spindles - a wide range of specifications is available to meet your production requirements including the 1250U, 1500U and 2000U versions for long workpieces

● : Standard ○ : Option - : N / A

		Max. swing	Turret		Milling function	Second spindle	Y-axis	Tailstock	Universal
			Bolt-on	VDI					
300	350	Φ720 mm	●	—	—	—	—	●	650U / 1250U / 1500U
300	350	Φ830 mm	●	—	—	—	—	●	2000U
300MA	350MA	Φ720 mm	●	—	●	—	—	●	650U / 1250U / 1500U
300MB	350MB	Φ830 mm	—	●	●	—	—	●	650U / 1250U / 1500U
300M	350M	Φ830 mm	●	●	●	—	—	●	2000U
300MY	350MY	Φ830 mm	●	○	●	—	●	●	650U / 1250U / 1500U / 2000U
300MS	350MS	Φ830 mm	●	○	●	●	—	—	650U / 1250U
300MSY	350MSY	Φ830 mm	●	○	●	●	●	—	650U / 1250U

QUICK TURN 350MA 650U [MAZATROL SmoothC]

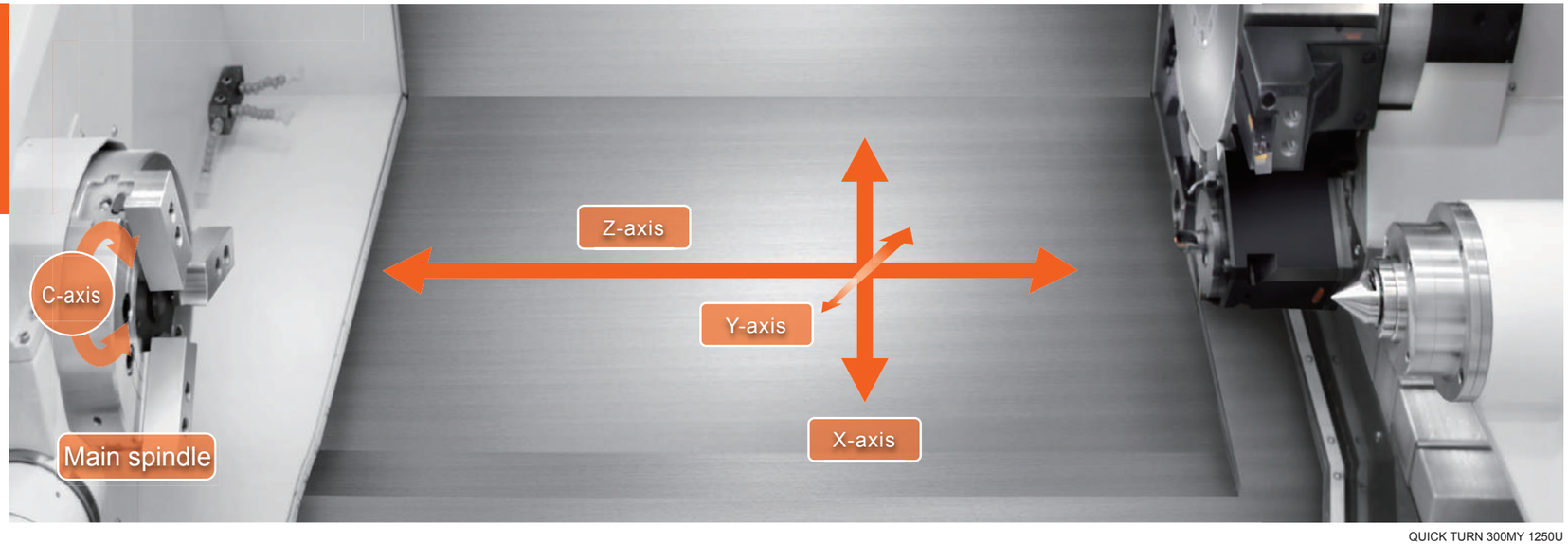
QUICK TURN 300MY 650U [MAZATROL SmoothG]



QUICK TURN 300MS 650U

1250U, 1500U and 2000U for long workpieces

QUICK TURN 350MSY 1250U [MAZATROL SmoothG]



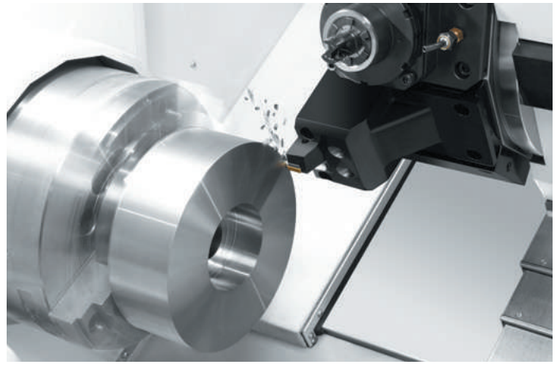
QUICK TURN 300MY 1250U

Higher Productivity

Main spindle

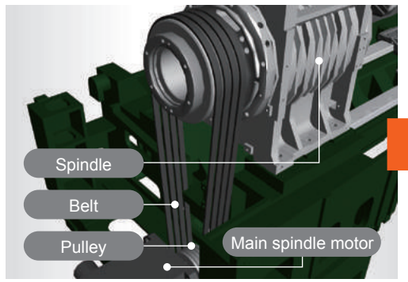
QUICK TURN 300, 350 SERIES

Integral spindle / motor ensures high productivity and high accuracy



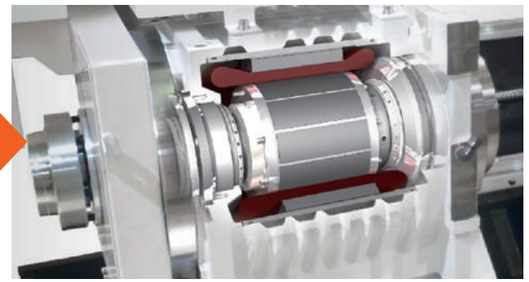
The QUICK TURN 300,350 series have different specifications of the integral spindle / motor to meet various machining requirements. Thanks to its design, vibration is minimized during high speed operation to ensure exceptional surface finishes and maximum tool life. Since no transmission with belts, pulleys or gears is used, the higher efficiency of the integral spindle / motor delivers more power to the tool tip to be used for cutting.
The spindle C-axis can be indexed by 0.0001° increments and can also perform contouring (standard equipment for machines with milling function).

Conventional belt drive

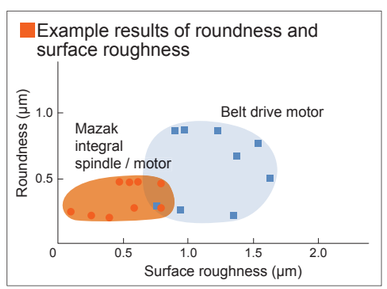


Vibration increases with faster speed

QUICK TURN Integral spindle / motor



Minimum vibration produced by integral spindle / motor



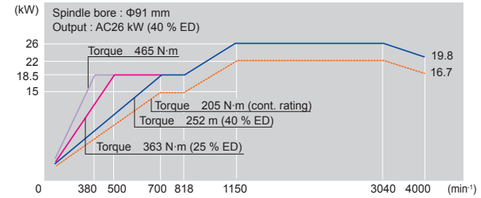
Wide range of spindle power specifications to meet your workpiece requirements

QUICK TURN 300

Standard 26 kW spindle

Speed	4000 min^{-1}
Output (40 % ED / cont. rating)	AC 26 / 22 kW
Torque (15 % ED)	465 N·m
Chuck size	10”
Spindle bore	Φ91 mm
Bar work capacity*	Φ80 mm

* Depends on chuck specifications



High torque 26 kW spindle OPTION

Speed	4000 min^{-1}
Output (40 % ED / cont. rating)	AC 26 / 22 kW
Torque (15 % ED)	808 N·m
Chuck size	10”
Spindle bore	Φ91 mm
Bar work capacity*	Φ80 mm

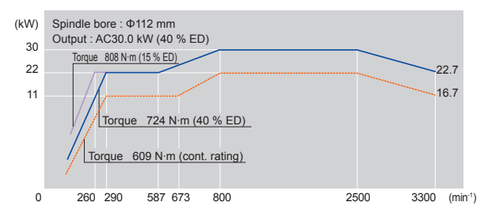
* Depends on chuck specifications

QUICK TURN 350

Standard 30 kW spindle

Speed	3300 min^{-1}
Output (40 % ED / cont. rating)	AC 30 / 22 kW
Torque (15 % ED)	808 N·m
Chuck size	12”
Spindle bore	Φ112 mm
Bar work capacity*	Φ102 mm

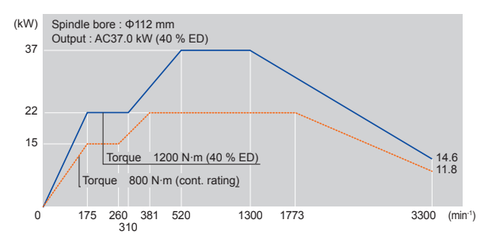
* Depends on chuck specifications



High torque 37 kW spindle OPTION

Speed	3300 min^{-1}
Output (40 % ED / cont. rating)	AC 37 / 22 kW
Torque (40 % ED)	1200 N·m
Chuck size	12”
Spindle bore	Φ112 mm
Bar work capacity*	Φ102 mm

* Depends on chuck specifications



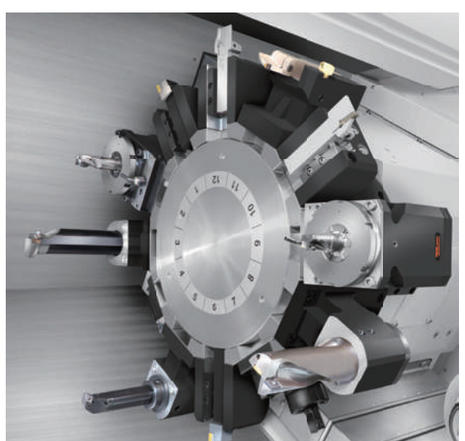
Higher Productivity

Available Turrets

Bolt-on turret

The 12 position drum turret is designed for the minimum interference. By using non-lift rotary indexing, high speed clamping / unclamping can be performed without interference. Additionally, thanks to random selection / shortest path indexing, chip-to-chip time when changing tools is extremely fast.

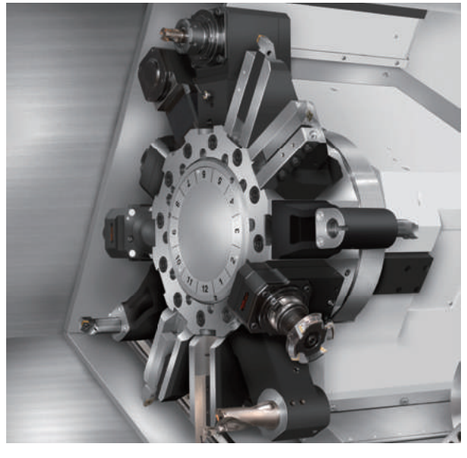
In case more than 12 tools are required, a 16 position drum turret is optionally available. (MY, MS and MSY)



Machines		300 / 350	300 / 350 (2000U)	300 / 350MA	300 / 350 / MY / MS / MSY 300 / 350M (2000U)	16 position drum bolt-on turret (option)
Type of tool holder		12 position drum (2-axes) bolt-on turret		12 position drum bolt-on turret		
Tool storage capacity		12				16
Turning tool shank size		□25 mm x 150 mm				
Boring bar size		Φ50 mm				
Turret indexing time	1 step	0.23 sec	0.26 sec	0.29 sec	0.26 sec	0.24 sec
	Full steps	0.62 sec	0.70 sec	0.72 sec	0.70 sec	

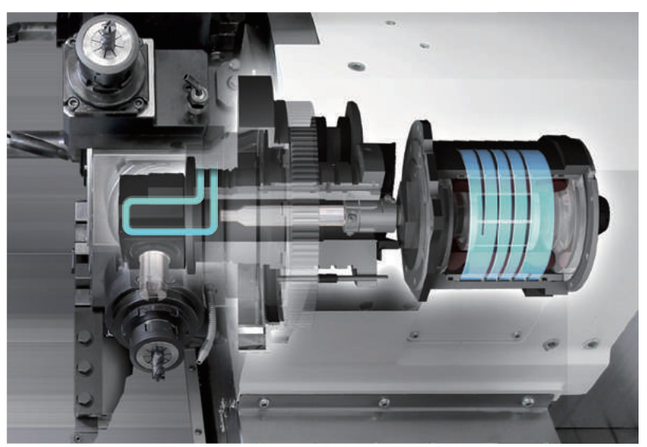
VDI turret

VDI tool holders can quickly and easily be mounted or removed to / from the turret by turning one bolt. Milling holders can be mounted at any turret position for smooth tool setups.



Machines		300 / 350MB / M / MY / MS / MSY
Type of tool holder		12 position drum VDI turret
Tool storage capacity		12
Turning tool shank size		□25 mm x 150 mm
Boring bar size		Φ50 mm
Turret indexing time	1 step	0.26 sec
	Full steps	0.70 sec

Smooth Mill Drive - Turret milling spindle integral spindle / motor



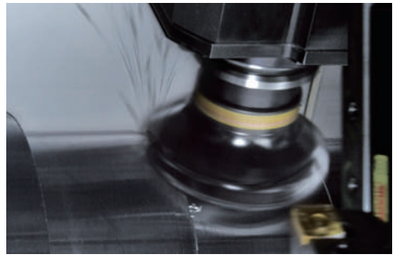
An integral spindle / motor is utilized for the turret milling spindle to minimize vibration for high accuracy. Temperature controlled cooling oil is circulated around the spindle bearings and housing to minimize any thermal change to the spindle.

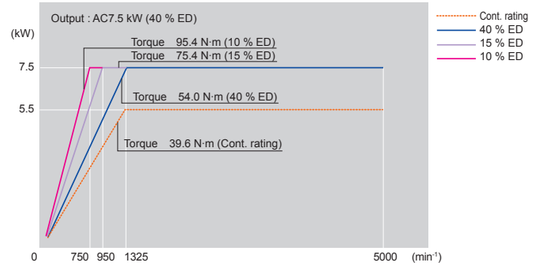
Standard 5000 min^{-1} and optional high speed 10000 min^{-1} meet the requirements of a wide variety of materials.

Rotary tool specification	Bolt-on		VDI
Speed	5000 min^{-1}	10000 min^{-1}	5000 min^{-1}
Output (40 % ED / cont.rating)	7.5 / 5.5 kW		
Torque (10 % ED)	95 N·m	48 N·m	95 N·m

5000 min^{-1} milling specification

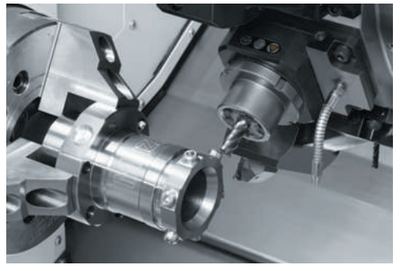
Standard bolt-on tool holder and VDI turret

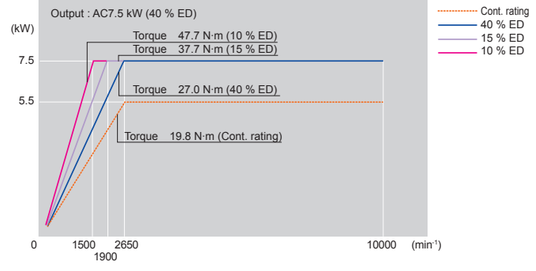




10000 min^{-1} milling specification

Bolt-on tool holder turret only OPTION



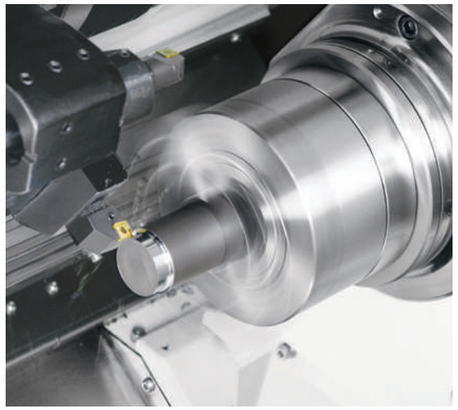


Higher Productivity

Second spindle

300MS, 350MS, 300MSY, 350MSY

By orienting both spindles, high accuracy workpiece transfer from the main spindle to the second spindle can be performed for continuous machining



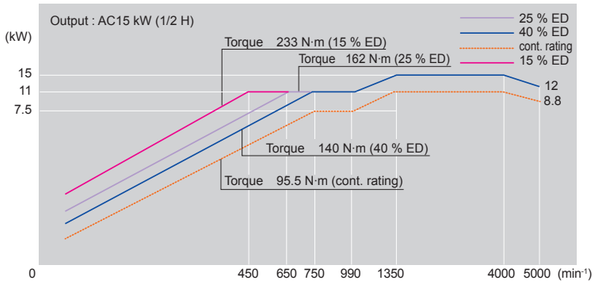
The second spindle also utilizes a high efficiency integral spindle / motor. Powerful turning and milling can be performed with the second spindle. C-axis indexing by 0.0001° increment is standard and contouring is optionally available.

Second spindle specifications

Speed	5000 min^{-1}
Output (40 % ED / cont. rating)	AC 15 / 11 kW
Torque (15 % ED)	233 N·m
Chuck size*	8" / 10" (option)

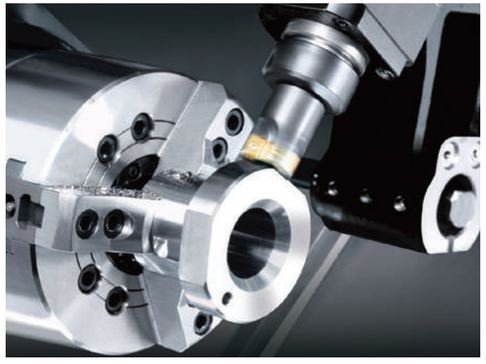
* 10" chuck for VDI only

Second spindle output / torque diagram

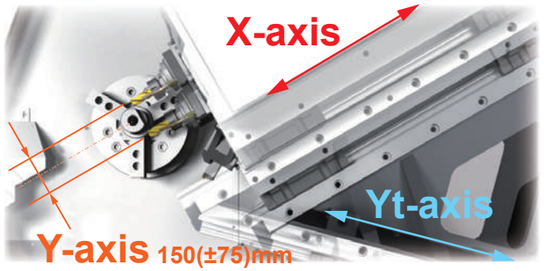


Y-axis

300MY, 350MY, 300MSY, 350MSY

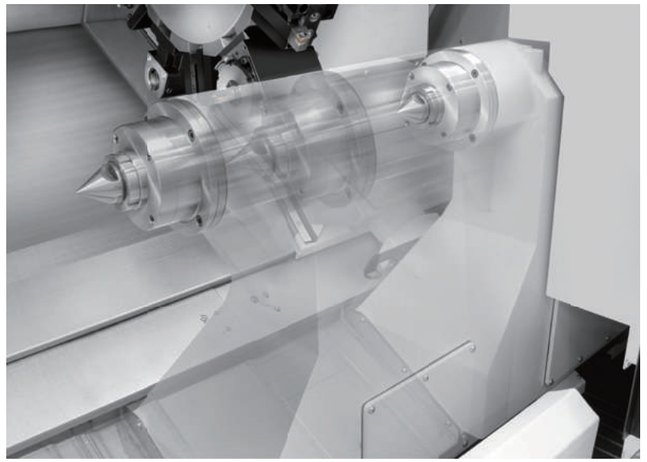


Double slide Y-axis enables multi-tasking machining of large workpieces in a compact machine. The Y-axis has a 150 (±75) mm stroke for the machining of complex and large workpieces.



NC tailstock

300, 350, 300MA, 350MA, 300MB, 350MB, 300MY, 350MY



The tailstock travel and thrust is controlled by a servo motor. The operator can set the tailstock position on the setup screen and move the tailstock to the correct position by 0.1 kN increments using a menu-key or M-code. The low thrust force ensures high accuracy turning even for small diameter shaft workpieces.

● : Standard ○ : Option - : N / A

Machines	MT No.5 live center	MT No.5 built-in center
650U	●	○
1250U	●	○
1500U	–	●
2000U	–	●

Operation is much easier compared to manual carriage movement or hydraulic / pneumatic thrust systems

Steady rest

1250U·1500U·2000U OPTION

A steady rest provides safe machining of long workpieces. It can be moved automatically by connecting to the turret unit by a coupling pin.

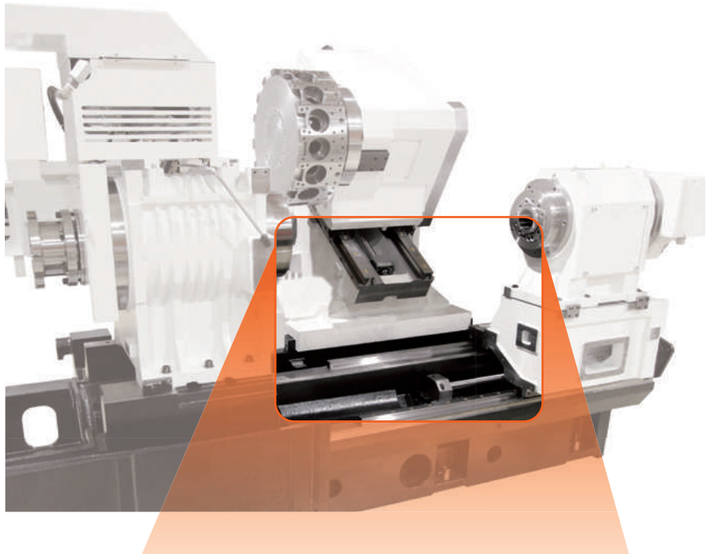
Machines		SMW K3 x 1	Fixed steady rest × 1
1250U	Workpiece diameter	Φ65～Φ235 mm	Φ30～Φ220 mm
1500U			
2000U			

Higher Accuracy

Machine designed for higher accuracy

High rigidity

The rigid machine construction is designed to ensure high precision during heavy duty machining.



Linear roller guides on all axes

Linear roller guides are utilized on all axes by the QUICK TURN 300,350 series for high speed, high rigidity and a long service life.

Mazak standard positioning accuracy - 2 times better than the ISO standard

		Center distance	ISO	Mazak standard
Bidirectional positioning accuracy	X-axis	—	22 μm	11 μm
	Y-axis	—	22 μm	11 μm
	Z-axis	650U	25 μm	13 μm
		1250U	32 μm	16 μm
		1500U	42 μm	21 μm
		2000U	42 μm	21 μm
	C-axis *	Main spindle	63 sec	20 sec

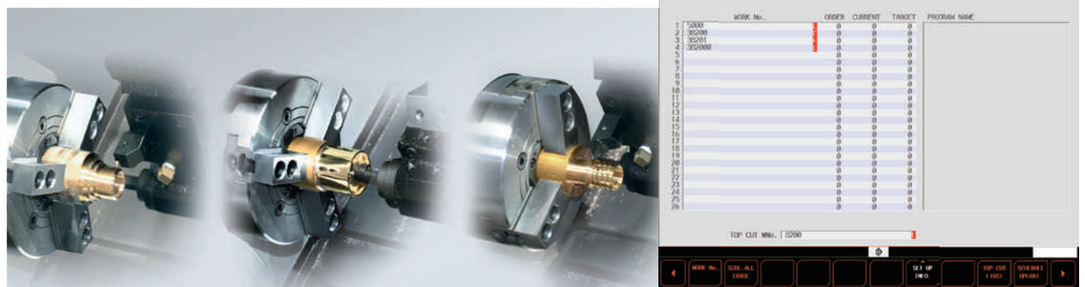
* Second spindle same when equipped with optional C-axis

Factory Automation

Max. bar work capacity : Φ102 mm*

Thanks to the large spindle bore (300 series : Φ91 mm, 350 series : Φ112 mm), large diameter bar material can be fed through the spindle or used with a bar feeder.
*Depends on chuck specifications

Optional bar feeder scheduling for high-mix, small lot size production and set production.



MAZATROL CNC System

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

MAZATROL SMOOTH C

- 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
- Home screen key goes to the home screen from any display
- Compact keypad with unique design for ease of input

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 CNC System

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

MAZATROL SMOOTH G

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 of USB-1.0+2.0 standard.

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

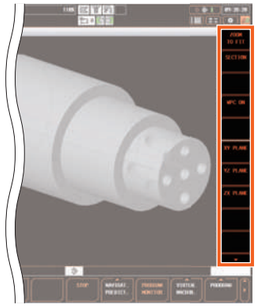
Machining

Maintenance

Pop-up windows

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

Side menu



List menu

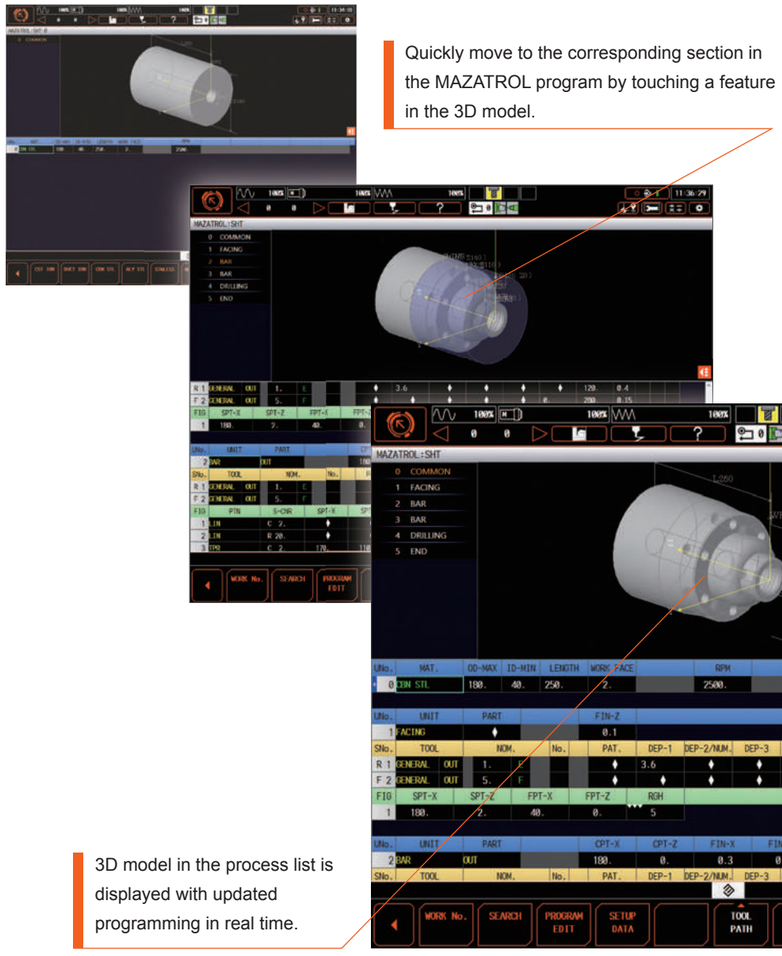
Screen key board

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.

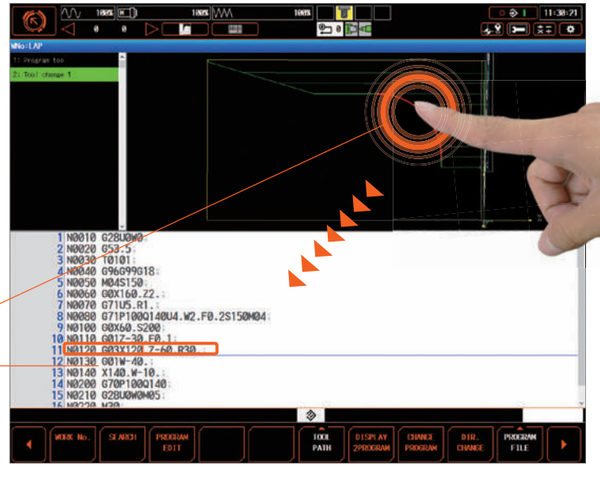
3D model in the process list is displayed with updated programming in real time.

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.

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.

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.

INTELLIGENT MACHINE®

Advanced Intelligent+ Functions

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

QUICK TURN 350MY (MAZATROL SmoothG)

Setup

Machine Interference Prevention

INTELLIGENT SAFETY SHIELD

ISS+

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.

Verbal Message System

MAZAK VOICE ADVISER

MVA+

MAZATROL SMOOTH G

Verbal support for machine setup and safe conditions confirmation.

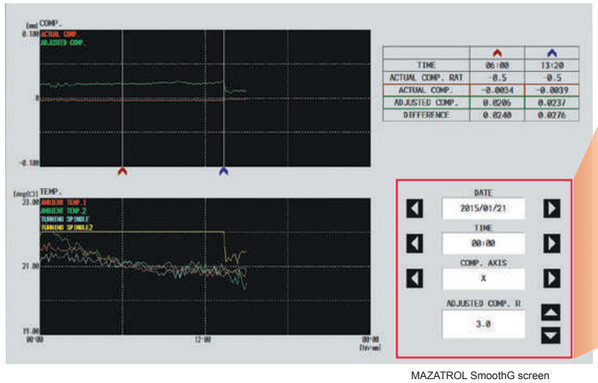
Machining

Heat Displacement Control

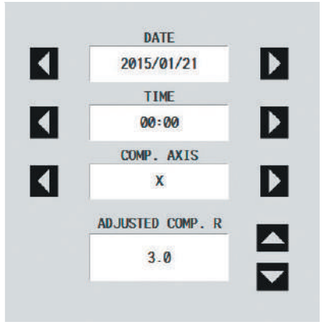
INTELLIGENT THERMAL SHIELD

ITS+

The INTELLGENT 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.



MAZATROL SmoothG screen



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

Variable Acceleration Control Function

VARIABLE ACCELERATION CONTROL (N / A 300, 350)

VAC

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

SCC

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

Maintenance

Comprehensive Maintenance Monitor

INTELLIGENT MAINTENANCE SUPPORT

IMS+

Useful information for improved preventative maintenance to prevent unexpected machine downtime.

Ergonomics

Ergonomic design for convenient operation

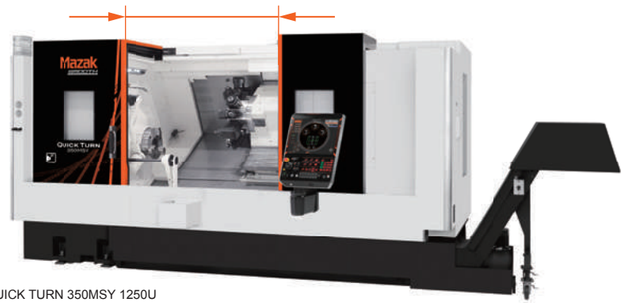
ergonomics

Front cover

Wide top cover opening provides excellent access for overhead crane.

Opening width		Machines			
		2-axes / MA	MB / MY	2-axes / M / MY	MS / MSY
Universal	650U	797 mm	817 mm	—	817 mm
	1250U	1497 mm	1492 mm	—	1492 mm
	1500U	1677 mm	1712 mm	—	—
	2000U	—	—	2209 mm	—

QUICK TURN 350MA 650U
[MAZATROL SmoothC]



QUICK TURN 350MSY 1250U
[MAZATROL SmoothG]

MAZATROL SMOOTHC

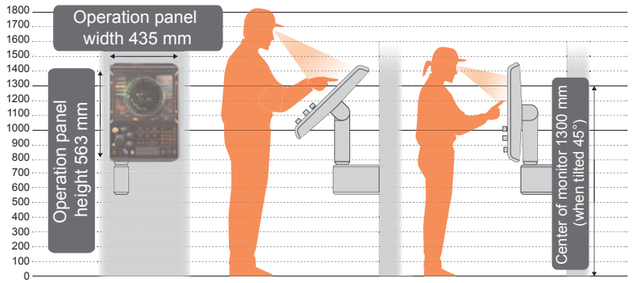
Rotating operation panel

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

MAZATROL SMOOTHG

Adjustable CNC touch panel

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



Large window

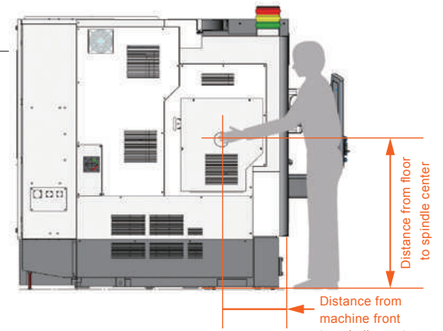
The large window on the operator door allows convenient monitoring of machine operation.

Convenient setup

The distance from the front cover to the spindle center line is small for convenient setup and workpiece loading / unloading.

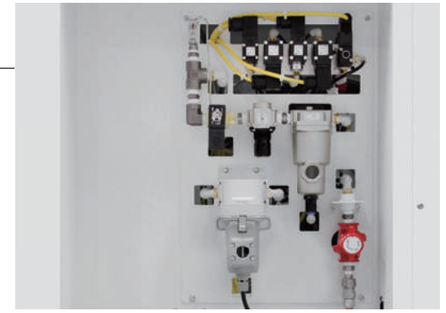
Accessibility	Machines	
	2-axis / MA	MB / MY / MS / MSY
Distance from floor to spindle center	1080 mm	1180 mm
Distance from machine front to spindle center	455 mm	490 mm

Note : 2000U has the same dimensions as MB, MY, MS and MSY.



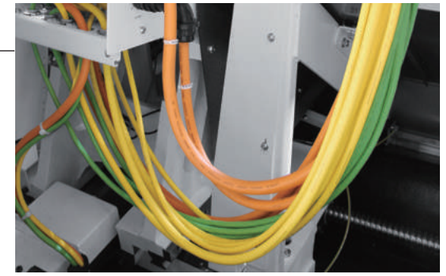
Ease of maintenance

All the items that require frequent access, such as valves and lubrication inlets are at one central location for convenient daily maintenance.



Color-coded cables

Electric cables are color-coded for convenient maintenance.



MAZATROL SmoothC Specifications

	MAZATROL	EIA
Number of controlled axes	Simultaneous 4 axes	
Least input increment	0.0001 mm, 0.0000 1inch, 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", 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

MAZATROL SmoothG Specifications

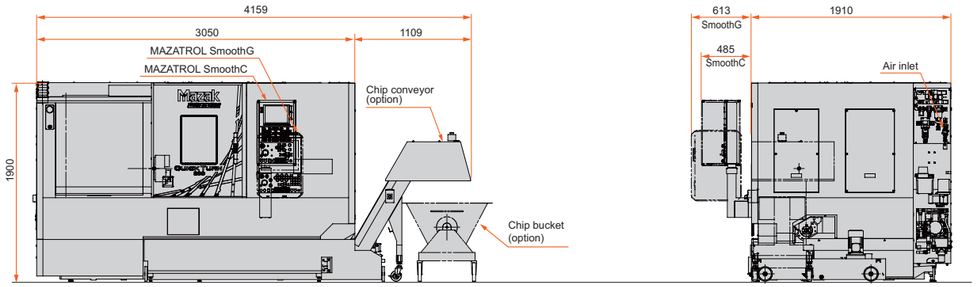
	MAZATROL	EIA
Number of controlled axes	Simultaneous 4 axes	
Least input increment	0.0001 mm, 0.00001 inch, 0.0001 deg	
High speed, high precision control	Shape error designation, Smooth corner control, Rapid traverse overlap	
Interpolation	Positioning (Linear interpolation), Positioning (Independent 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

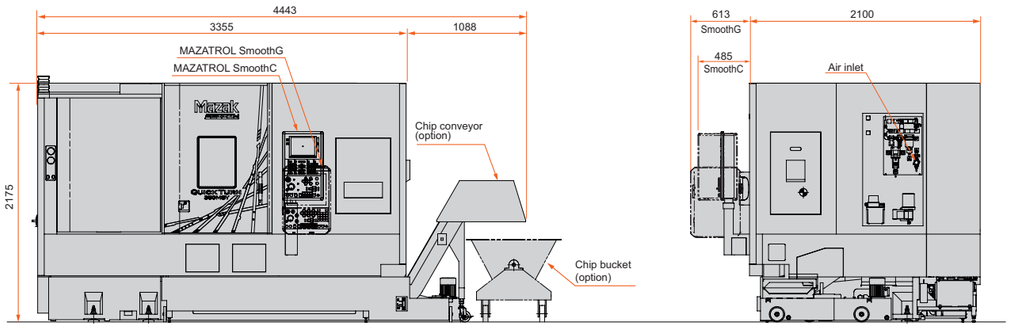
Machine Dimensions

Unit : mm

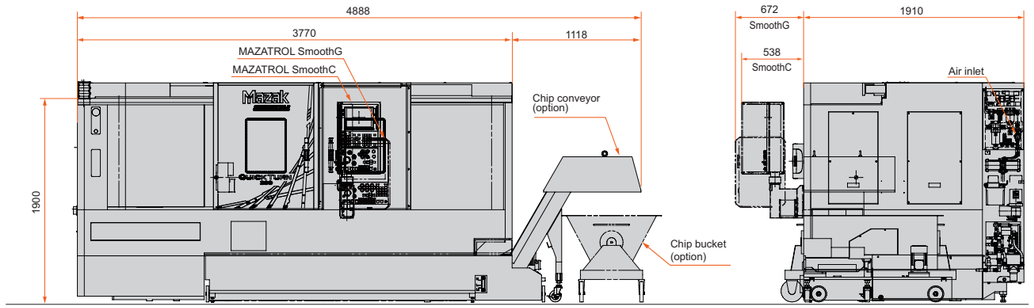
QUICK TURN 300, 350, 300MA, 350MA 650U



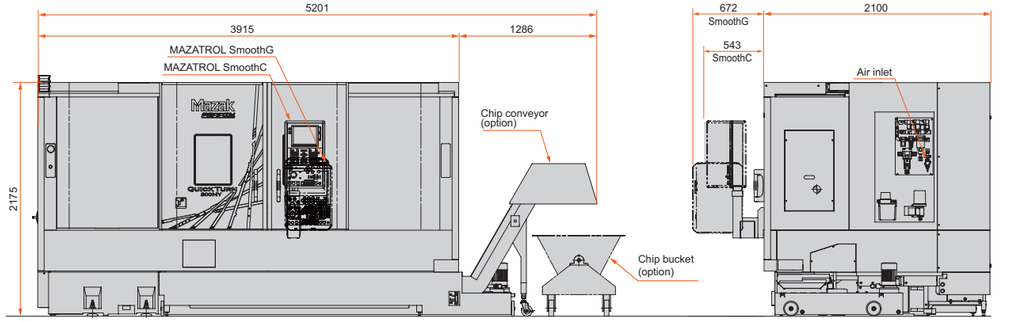
QUICK TURN 300MB, 350MB, 300MY, 350MY, 300MS, 350MS, 300MSY, 350MSY 650U



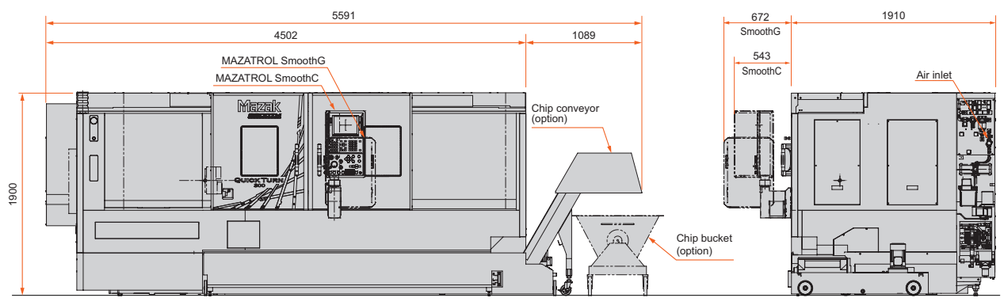
QUICK TURN 300, 350, 300MA, 350MA 1250U



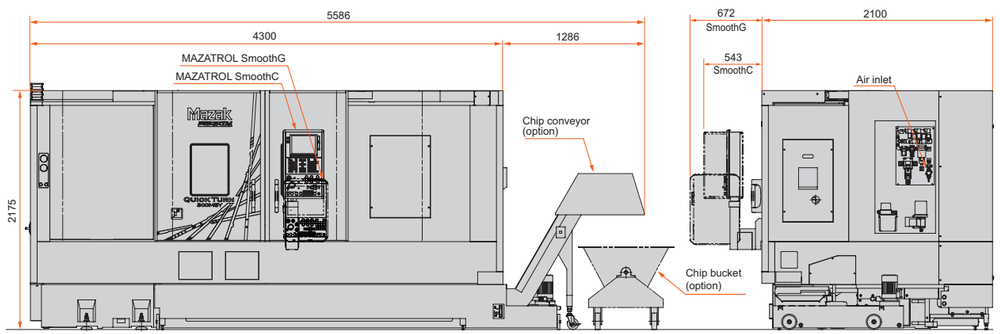
QUICK TURN 300MB, 350MB, 300MY 350MY 1250U



QUICK TURN 300, 350, 300MA, 350MA 1500U



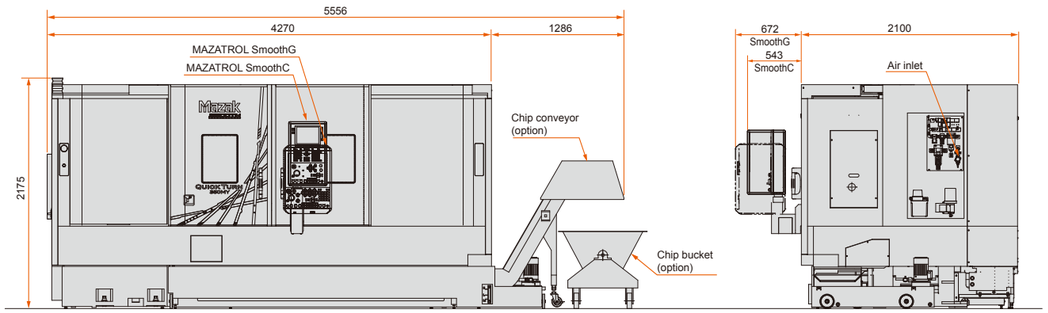
QUICK TURN 300MS, 350MS, 300MSY, 350MSY 1250U



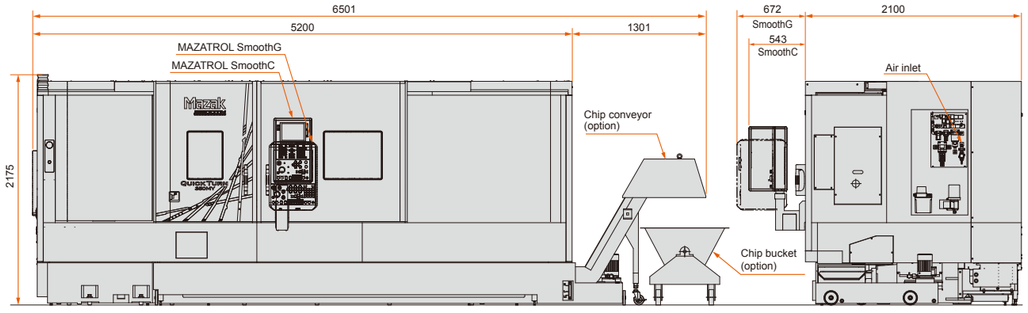
Machine Dimensions

Unit : mm

QUICK TURN 300MB, 350MB, 300MY, 350MY 1500U



QUICK TURN 300, 350, 300M, 350M, 300MY, 350MY 2000U



Standard Machine Specifications

QUICK TURN 300, 300MA, 300MB, 300MY, 300MS, 300MSY

		300	300MA	300MB	300MY	300MS	300MSY
Universal		650 / 1250 / 1500U	650 / 1250 / 1500U	650 / 1250 / 1500U	650 / 1250 / 1500U	650U / 1250U	650U / 1250U
Capacity	Max. swing	Φ720 mm		Φ830 mm			
	Max. machining diameter	Φ420 mm		Φ420 mm	Φ430 mm (Φ420 mm : VDI)		
	Max. machining length*1	662 / 1282 / 1597 mm		652 / 1247 / 1587 mm	658 / 1253 / 1593 mm	—	
	Distance between chuck jaws top faces*1	—				697 / 1271 mm	
	Bar work capacity	Φ80 mm*2					
Travel	X-axis	240 mm	265 mm	270 mm			
	Y-axis	—			150 mm (±75 mm)	—	150 mm (±75 mm)
	Z-axis	710 / 1314 / 1645 mm	730 / 1350 / 1665 mm	690 / 1285 / 1625 mm		690 / 1285 mmm	
Spindle	Chuck size	10"					
	Spindle speed*3	4000 min^{-1} (rpm)					
	Number of spindle speed ranges	1-Stepless					
	Spindle nose	A2-8"					
	Spindle bore	Φ91 mm					
Second spindle	Chuck size	—				8" (OP. 10" VDI only)	
	Spindle speed*3	—				5000 min^{-1} (rpm)	
	Number of spindle speed ranges	—				1-Stepless	
	Spindle nose	—				A2-6"	
	Spindle bore	—				Φ76 mm	
Turret	Turret type	12 position drum turret (bolt-on)		12 position drum turret (VDI)	12 position drum turret (bolt-on / OP. VDI)		
	Number of tools	12					
	Turning tool shank size	25 mm					
	Boring bar shank diameter	Φ50 mm					
	Turret indexing time	0.23 sec / 1step	0.29 sec / 1step	0.26 sec / 1 step			
Rotary tool spindle	Spindle speed	—	5000 min^{-1} (rpm) [OP. 10000 min^{-1} (rpm)]				
	Milling capacity	—	Drill: Φ25 mm				
		—	Endmill: Φ25 mm				
		—	Tap: M24 x 3.0				
Feedrate	Rapid traverse rate : X-axis	30000 mm/min					
	Rapid traverse rate : Y-axis	—			15000 mm/min	—	15000 mm/min
	Rapid traverse rate : Z-axis	33000 mm/min					
	Rapid traverse rate : C-axis	—	555 min^{-1} (rpm)				
Tailstock	Tailstock stroke	645 / 1265 / 1580 mm		645 / 1240 / 1580 mm	—		
	Tailstock center	MT-No.5 (dead type) (OP. (built-in) MT-No.5) built-in standard on 1500U			—		
Motors	Spindle motor (40 % ED / cont. rating)	26 kW / 22 kW					
	Second spindle motor (40 % ED / cont. rating)	—				15 / 11 kW	
	Rotary tool milling motor (40 % ED / cont. rating)	—	7.5 / 5.5 kW				
	Motor for coolant	0.52 kW					
Power requirement	Electrical power requirements (cont. rating)	37.7 kVA	37.9 kVA		39.4 kVA	38.4 kVA	39.9 kVA
	Air supply	0.5 MPa, 85 L/min	0.5 MPa, 160 L/min				
Coolant	Tank capacity*4	225 / 320 / 340 L		225 / 270 / 290 L		245 / 290 L	
Machine size	Machine height	1900 mm		2175 mm			
	Floor space requirement*5	3050 x 1910 / 3770 x 1910 / 4500 mm x 1910 mm		3355 x 2100 / 3915 x 2100 / 4270 mm x 2100 mm		3355 x 2100 / 4300 mm x 2100 mm	
	Weight	5800 / 6600 / 7000 kg	6100 / 6900 / 7300 kg	8800 / 9450 / 8800 kg		9200 / 10050 kg	

*1 Depends on chuck specifications
*2 With BB210A815through-hole chuck
*3 Standard : MT No.5 (dead center) Option : MT No.5 (built-in center)
*4 Depends on coolant tank specifications
*5 Operation panel not included

Standard Machine Specifications

QUICK TURN 350, 350MA, 350MB, 350MY, 350MS, 350MSY

		350	350MA	350MB	350MY	350MS	350MSY
Universal		650 / 1250 / 1500U	650 / 1250 / 1500U	650 / 1250 / 1500U	650 / 1250 / 1500U	650U / 1250U	650U / 1250U
Capacity	Max. swing	Φ720 mm		Φ830 mm			
	Max. machining diameter	Φ420 mm		Φ420 mm	Φ430 mm (Φ420 mm : VDI)		
	Max. machining length*1	614 / 1234 / 1549 mm		6604 / 1199 / 1539 mm	610 / 1205 / 1545 mm	—	
	Distance between chuck jaws top faces*1	—				656 / 1230 mm	
	Bar work capacity	Φ102 mm*2					
Travel	X-axis	240 mm	265 mm	270 mm			
	Y-axis	—			150 mm (±75 mm)	—	150 mm (±75 mm)
	Z-axis	710 / 1314 / 1645 mm	730 / 1350 / 1665 mm	690 / 1285 / 1625 mm		690 / 1285 mmm	
Spindle	Chuck size	12"					
	Spindle speed*3	3300 min^{-1} (rpm)					
	Number of spindle speed ranges	1-Stepless					
	Spindle nose	A2-11"					
	Spindle bore	Φ112 mm					
Second spindle	Chuck size	—				8" (OP. 10" VDI only)	
	Spindle speed*3	—				5000 min^{-1} (rpm)	
	Number of spindle speed ranges	—				1-Stepless	
	Spindle nose	—				A2-6"	
	Spindle bore	—				Φ76 mm	
Turret	Turret type	12 position drum turret (bolt-on)		12 position drum turret (VDI)	12 position drum turret (bolt-on / OP. VDI)		
	Number of tools	12					
	Turning tool shank size	25 mm					
	Boring bar shank diameter	Φ50 mm					
	Turret indexing time	0.23 sec / 1step	0.29 sec / 1step	0.26 sec / 1 step			
Rotary tool spindle	Spindle speed	—	5000 min^{-1} (rpm) [OP. 10000 min^{-1} (rpm)]				
	Milling capacity	—	Drill: Φ25 mm				
		—	Endmill: Φ25 mm				
		—	Tap: M24 x 3.0				
Feedrate	Rapid traverse rate : X-axis	30000 mm/min					
	Rapid traverse rate : Y-axis	—			15000 mm/min	—	15000 mm/min
	Rapid traverse rate : Z-axis	33000 mm/min					
	Rapid traverse rate : C-axis	—	555 min^{-1} (rpm)				
Tailstock	Tailstock stroke	645 / 1265 / 1580 mm		645 mm / 1240 mm		—	
	Tailstock center	MT-No.5 (dead type) (OP. built-in MT-No.5) built-in standard on 1500U				—	
Motors	Spindle motor (40 % ED / cont. rating)	30 kW / 22 kW (OP. 37 /22 kW)					
	Second spindle motor (40 % ED / cont. rating)	—				15 / 11 kW	
	Rotary tool milling motor (40 % ED / cont. rating)	—	7.5 / 5.5 kW				
	Motor for coolant	0.52 kW					
Power requirement	Electrical power requirements (cont. rating)	37.8 kVA	38.1 kVA		39.6 kVA	38.6 kVA	40.1 kVA
	Air supply	0.5 MPa, 85 L/min	0.5 MPa, 160 L/min				
Coolant	Tank capacity*4	225 / 320 / 340 L		225 / 270 / 290 L		245 / 290 L	
Machine size	Machine height	1900 mm		2175 mm			
	Floor space requirement*5	3050 x 1910 / 3770 x 1910 / 4500 mm x 1910 mm		3355 x 2100 / 3915 x 2100 / 4270 mm x 2100 mm		3355 x 2100 / 4300 mm x 2100 mm	
	Weight	6100 / 6900 / 7300 kg	6400 / 7200 / 7600 kg	9000 / 9650 / 8900 kg		9400 / 10250 kg	

*1 Depends on chuck specifications
*2 With BB212A1115 through-hole chuck
*3 Standard : MT No.5 (dead center) Option : MT No.5 (built-in center)
*4 Depends on coolant tank specifications
*5 Operation panel not included

QUICK TURN 300, 300M, 300MY, 350, 350M, 350MY 2000U

		300	300M	300MY	350	350M	350MY
		2000U	2000U	2000U	2000U	2000U	2000U
Capacity	Max. swing	Φ830 mm			Φ830 mm		
	Max. machining diameter	Φ490 mm	Φ430 mm (Φ420 mm : VDI)		Φ490 mm	Φ430 mm (Φ420 mm : VDI)	
	Max. machining length*1	2102 mm	2108 mm (2102 mm : VDI)		2054 mm	2060 mm (2054 mm : VDI)	
	Bar work capacity	Φ80 mm*2			Φ112 mm*3		
Travel	X-axis	270 mm			270 mm		
	Y-axis	—		150 mm (±75 mm)	—		150 mm (±75 mm)
	Z-axis	2140 mm			2140 mm		
Spindle	Chuck size	10"			12"		
	Spindle speed*1	4000 min^{-1} (rpm)			3300 min^{-1} (rpm)		
	Number of spindle speed ranges	1-Stepless			1-Stepless		
	Spindle nose	A2-8"			A2-11"		
	Spindle bore	Φ91 mm			Φ112 mm		
Turret	Turret type	12 position drum turret (bolt-on)	12 position drum turret (bolt-on / OP. VDI)		12 position drum turret (bolt-on)	12 position drum turret (bolt-on / OP. VDI)	
	Number of tools	12			12		
	Turning tool shank size	25 mm			25 mm		
	Boring bar shank diameter	Φ50 mm			Φ50 mm		
	Turret indexing time	0.26 sec / 1 step			0.26 sec / 1 step		
Rotary tool spindle	Spindle speed	—	5000 min^{-1} (rpm) [OP. 10000 min^{-1} (rpm)]		—	5000 min^{-1} (rpm) [OP. 10000 min^{-1} (rpm)]	
	Milling capacity	—	Drill: Φ25 mm		—	Drill: Φ25 mm	
		—	Endmill: Φ25 mm		—	Endmill: Φ25 mm	
		—	Tap: M24 x 3.0		—	Tap: M24 x 3.0	
Feedrate	Rapid traverse rate: X-axis	30000 mm/min			30000 mm/min		
	Rapid traverse rate: Y-axis	—		15000 mm/min	—		15000 mm/min
	Rapid traverse rate: Z-axis	30000 mm/min			30000 mm/min		
	Rapid traverse rate: C-axis	—	555 min^{-1} (rpm)		—	555 min^{-1} (rpm)	
Tailstock	Tailstock stroke	2095 mm			2095 mm		
	Tailstock center	built-in MT-No.5			built-in MT-No.5		
Motors	Spindle motor (40 % ED / cont. rating)	26 kW / 22 kW			30 kW / 22 kW (OP. 37 / 22 kW)		
	Rotary tool milling motor (40 % ED / cont. rating)	—	7.5 / 5.5 kW		—	7.5 / 5.5 kW	
	Motor for coolant	0.52 kW			0.52 kW		
Power requirement	Electrical power requirements (cont. rating)	37.7 kVA	37.9 kVA	39.4 kVA	37.8 kVA	38.1 kVA	39.6 kVA
Coolant	Air supply	0.5 MPa, 85 L/min	0.5 MPa, 160 L/min		0.5 MPa, 85 L/min	0.5 MPa, 160 L/min	
Machine size	Tank capacity*5	400 L			400 L		
	Machine height	2175 mm			2175 mm		
	Floor space requirement*6	5200 x 2100 mm			5200 x 2100 mm		
	Weight	11100 kg	11200 kg		11300 kg	11400 kg	

*1 Depends on chuck specifications
*2 With BB210A815 through-hole chuck
*3 With BB212A1115 hrough-hole chuck
*4 MT No.5 (built-in center) is standard on 2000U
*5 Depends on coolant tank specifications
*6 Operation panel not included

Standard and Optional Equipment

QUICK TURN 300, 300MA, 300MB, 300M, 300MY, 300MS, 300MSY

● : Standard ○ : Option - : N / A

		300	300MA	300MB	300M	300MY	300MS	300MSY
Machine	Main spindle 10" non through-hole chuck N-10	●	●	●	●	●	–	–
	Main spindle 10" through-hole chuck B-210	○	○	○	○	○	●	●
	Main spindle 10" through-hole chuck BB-210	○	○	○	○	○	○	○
	Second spindle 8" through-hole chuck B-208	–	–	–	–	–	●	●
	Second spindle 10" through-hole chuck B-210*1	–	–	–	–	–	○	○
	High torque spindle (A2-8) 808 N·m	○	○	○	○	○	○	○
	12 position drum turret (Bolt-on tool holder)	●	●	–	●	●	●	●
	16 position drum turret (Bolt-on tool holder)	–	–	–	–	○	○	○
	12 position drum turret (VDI tool holder)	–	–	●	○	○	○	○
	Rotary tool 5000 min^{-1} (rpm)	–	●	●	●	●	●	●
	Rotary tool 10000 min^{-1} (rpm)	–	○	–	○	○	○	○
	Tailstock (MT-No.5 dead center)	●	●	●	–	●	–	–
	Tailstock (MT-No.5 built-in center)*2	○	○	○	●	○	–	–
	Tailstock thrust automatic change	●	●	●	●	●	–	–
	Live center LC-5SW	○	○	○	–	○	–	–
	Live center LC-5A	○	○	○	–	○	–	–
	Second spindle C-axis control	–	–	–	–	–	○	○
	Automatic steady rest K3 (except 650U)	○	○	○	○	○	–	–
	Automatic steady rest preparation for K3 (except 650U)	○	○	○	○	○	–	–
	Fixed steady rest (Φ30-Φ220) (except 650U)	○	○	○	○	○	–	–
	Scale feedback	○	○	○	○	○	○	○
	Worklight	●	●	●	●	●	●	●
Factory automation	Absolute position detection	●	●	●	●	●	●	●
	Spindle orient	○	○	○	○	○	○	○
	Tool eye	○	○	○	○	○	○	○
	Automatic chuck jaws open / close	○	○	○	○	○	●	●
	Chuck jaws air blast	○	○	○	○	○	○	○
	Chuck jaws air blast (second spindle)	–	–	–	–	–	●	●
	Workpiece automatic measurement	○	○	○	○	○	○	○
	Bar feeder interface	○	○	○	○	○	○	○
	Robot interface	○	○	○	○	○	○	○
	Auto parts catcher	○	○	○	○	○	○	○
	Automatic front door open / close	○	○	○	○	○	○	○
	Automatic power off	●	●	●	●	●	●	●
	Automatic power ON / OFF + warm-up operation*3	○	○	○	○	○	○	○
	Operation end buzzer	○	○	○	○	○	○	○
	Status light (3 colors)	○	○	○	○	○	○	○
Safety equipment	Chuck jaws open / close confirmation	●	●	●	●	●	●	●
	Hydraulic pressure interlock	●	●	●	●	●	●	●
	Double foot pedal chuck switch	○	○	○	○	○	○	○
	Overload detection system	○	○	○	○	○	○	○
Coolant / Chip disposal	Chip pan without chip conveyor	●	●	●	●	●	●	●
	Side discharge chip conveyor	○	○	○	○	○	○	○
	Preparation for chip conveyor	○	○	○	○	○	○	○
	Chip bucket (rotary)	○	○	○	○	○	○	○
	Chip bucket (fixed)	○	○	○	○	○	○	○
	Coolant temperature control	○	○	○	○	○	○	○
	Turret air blast	○	○	○	○	○	○	○
	Additional coolant nozzle (head side)	○	○	○	○	○	○	○
	Mist collector	○	○	○	○	○	○	○
	Coolant system	●	●	●	●	●	●	●
	Powerful coolant (520 W)	●	●	●	●	●	●	●
	Powerful coolant (1.1 kW)	○	○	○	○	○	○	○
	SUPERFLOW coolant system	○	○	○	○	○	○	○
Other	CD manual	●	●	●	●	●	●	●
	Set of adjusting tools	○	○	○	○	○	○	○
CNC*4	MAZATROL SmoothC	●	●	●	●	●	●	●
	MAZATROL SmoothG	○	○	○	○	○	○	○

*1 Only available with VDI turret
*2 Standard equipment on 1500U and 2000U
*3 Standard equipment with MAZATROL SmoothG
*4 Standard CNC system varies by market.

QUICK TURN 350, 350MA, 350MB, 350M, 350MY, 350MS, 350MSY

● : Standard ○ : Option - : N / A

		350	350MA	350MB	350M	350MY	350MS	350MSY
Machine	Main spindle 12" non through-hole chuck N-12	●	●	●	●	●	–	–
	Main spindle 12" through-hole chuck B-212	○	○	○	○	○	●	●
	Main spindle 12" through-hole chuck BB-212	○	○	○	○	○	○	○
	Second spindle 8" through-hole chuck B-208	–	–	–	–	–	●	●
	Second spindle 10" through-hole chuck B-210*1	–	–	–	–	–	○	○
	High torque spindle (A2-11) 1200 N·m	○	○	○	○	○	○	○
	12 position drum turret (Bolt-on tool holder)	●	●	–	●	●	●	●
	16 position drum turret (Bolt-on tool holder)	–	–	–	–	○	○	○
	12 position drum turret (VDI tool holder)	–	–	●	○	○	○	○
	Rotary tool 5000 min^{-1} (rpm)	–	●	●	●	●	●	●
	Rotary tool 10000 min^{-1} (rpm)	–	○	–	○	○	○	○
	Tailstock (MT-No.5 dead center)	●	●	●	–	●	–	–
	Tailstock (MT-No.5 built-in center)*2	○	○	○	●	○	–	–
	Tailstock thrust automatic change	●	●	●	●	●	–	–
	Live center LC-5SW	○	○	○	–	○	–	–
	Live center LC-5A	○	○	○	–	○	–	–
	Second spindle C-axis control	–	–	–	–	–	○	○
	Automatic steady rest K3 (except 650U)	○	○	○	○	○	–	–
	Automatic steady rest preparation for K3 (except 650U)	○	○	○	○	○	–	–
	Fixed steady rest (Φ30-Φ220) (except 650U)	○	○	○	○	○	–	–
	Scale feedback	○	○	○	○	○	○	○
	Worklight	●	●	●	●	●	●	●
Factory automation	Absolute position detection	●	●	●	●	●	●	●
	Spindle orient	○	○	○	○	○	○	○
	Tool eye	○	○	○	○	○	○	○
	Automatic chuck jaws open / close	○	○	○	○	○	●	●
	Chuck jaws air blast	○	○	○	○	○	○	○
	Chuck jaws air blast (second spindle)	–	–	–	–	–	●	●
	Workpiece automatic measurement	○	○	○	○	○	○	○
	Bar feeder interface	○	○	○	○	○	○	○
	Robot interface	○	○	○	○	○	○	○
	Auto parts catcher	○	○	○	○	○	○	○
	Automatic front door open / close	○	○	○	○	○	○	○
	Automatic power off	●	●	●	●	●	●	●
	Automatic power ON / OFF + warm-up operation*3	○	○	○	○	○	○	○
	Operation end buzzer	○	○	○	○	○	○	○
	Status light (3 colors)	○	○	○	○	○	○	○
Safety equipment	Chuck jaws open / close confirmation	●	●	●	●	●	●	●
	Hydraulic pressure interlock	●	●	●	●	●	●	●
	Double foot pedal chuck switch	○	○	○	○	○	○	○
	Overload detection system	○	○	○	○	○	○	○
Coolant / Chip disposal	Chip pan without chip conveyor	●	●	●	●	●	●	●
	Side discharge chip conveyor	○	○	○	○	○	○	○
	Preparation for chip conveyor	○	○	○	○	○	○	○
	Chip bucket (rotary)	○	○	○	○	○	○	○
	Chip bucket (fixed)	○	○	○	○	○	○	○
	Coolant temperature control	○	○	○	○	○	○	○
	Turret air blast	○	○	○	○	○	○	○
	Additional coolant nozzle (head side)	○	○	○	○	○	○	○
	Mist collector	○	○	○	○	○	○	○
	Coolant system	●	●	●	●	●	●	●
	Powerful coolant (520 W)	●	●	●	●	●	●	●
	Powerful coolant (1.1 kW)	○	○	○	○	○	○	○
	SUPERFLOW coolant system	○	○	○	○	○	○	○
Other	CD manual	●	●	●	●	●	●	●
	Set of adjusting tools	○	○	○	○	○	○	○
CNC*4	MAZATROL SmoothC	●	●	●	●	●	●	●
	MAZATROL SmoothG	○	○	○	○	○	○	○

*1 Only available with VDI turret
*2 Standard equipment on 1500U and 2000U
*3 Standard equipment with MAZATROL SmoothG
*4 Standard CNC system varies by market.

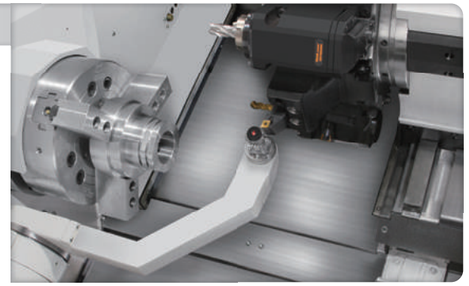
Optional Equipment

Automatic opening / closing front door

The automatic opening / closing front door operates in 3 speed steps.
If an operator inadvertently places a hand in the opening, operation will automatically stop when the door contacts his hand.

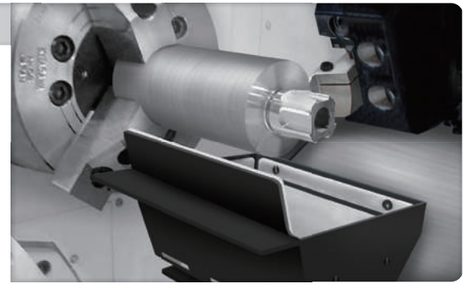
Tool eye

The tool eye can be programmed for automatic tool measurement and compensation as well as inspection for tool breakage. In addition, since tool setup is done by simply bringing the tool tip into contact with the tool eye, tool setup time is considerably reduced.



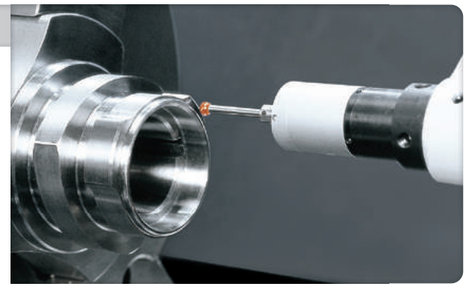
Auto parts catcher

Auto parts catcher automatically moves workpieces to outside of the machine. By using a bar feeder and work conveyor, automatic operation can be performed.



Automatic workpiece measurement

Touch sensor on turret automatically measures workpiece I.D., O.D., and step height, and compensates tools to ensure high machining accuracy.



Environmentally Friendly

eco-friendly

Designed with environmental considerations

The environment and our impact on natural surroundings have always been important concerns of Yamazaki Mazak.
This is shown by the fact that all factories in Japan 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 air, water or land.

Automatic-off LED worklight and CNC screen are standard equipment for the QUICK TURN 300, 350 series.
The chip conveyor automatically stops operation 5 minutes after cycle completion for reduced electrical power consumption.

**High efficiency lubrication system delivers the optimum amount of grease to the linear roller guides and ball screws with lower lubricant consumption.
The grease lubrication system eliminates tramp oil for extended service life of coolant.**

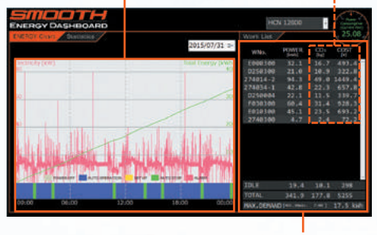
Energy Dashboard (MAZATROL SmoothG)

OPTION

The Energy Dashboard provides a convenient visual monitoring of energy consumption and 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

QUICK TURN 300MY 650U [MAZATROL SmoothG]