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QTE

S E R I E S

Mazak

MAZATROL
SMOOTH*EZ*



QTE SERIES



Turning, milling, Y-axis and second spindle configurations designed to meet your production requirements

Higher productivity

Integral spindle / motor for high-accuracy, high-speed machining
12 position drum turret with minimum interference

Accuracy and Reliability

The latest precision roller guide technology, combined with fine pitch, dual lagged, integrally cast mounted ball screws ensure high rigidity and long-term accuracy

The latest MAZATROL SmoothEz CNC control

Optional Smooth CAM Ai software enables digital twin setup in an office

QTE-100 SG SERIES

	Universal	Chuck size	Max.swing	Turret	Milling function	Second spindle	Y-axis	Tailstock
100 SG	300U	6"	Φ22.83in	12 position drum turret	—	—	—	•
100M SG	500U	6"	Φ27.36in	12 position drum turret	•	—	—	•
100MY SG	500U	6"	Φ27.36in	12 position drum turret	•	—	•	•
100MSY SG	500U	6"	Φ27.36in	12 position drum turret	•	•	•	—

Higher Productivity

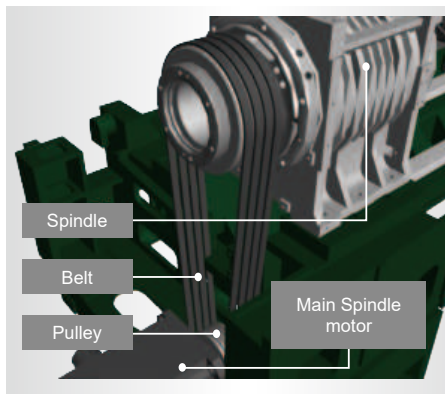
Main spindle



Integral spindle / motor

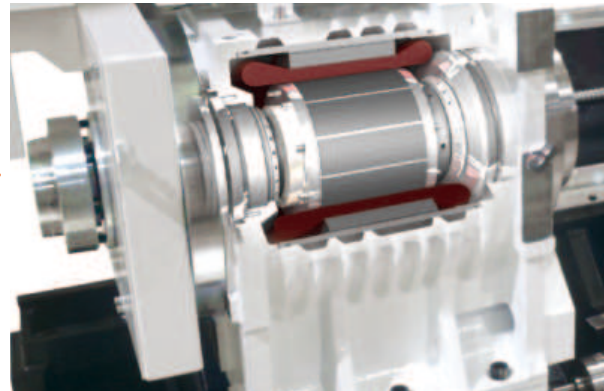
The integral spindle / motor design provides high-speed acceleration and deceleration with minimum vibration to ensure exceptional surface finishes and maximum tool life. In addition, this design also delivers more power to the tool tip for the best cutting performance.

Conventional belt drive



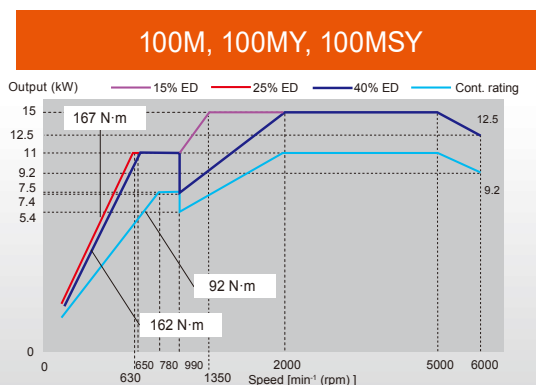
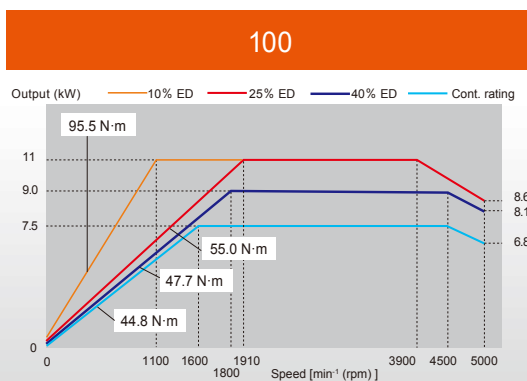
Vibration increases with faster speed

QTE Integral spindle / motor



Minimum vibration produced by integral spindle / motor

The spindle is designed for high-torque machining capability in the low-speed range which provides high-rigidity machining. Additionally, the high-speed acceleration and deceleration enhances productivity.



Machines	Output (short-duration rating)	Output (cont.rating)	Speed	Max. torque
100	11 kW (25% ED)	7.5 kW	5000 min ⁻¹ (rpm)	95.5 N·m (10% ED)
100M, 100MY, 100MSY	15 kW (40% ED)	11 kW	6000 min ⁻¹ (rpm)	167 N·m (25% ED)

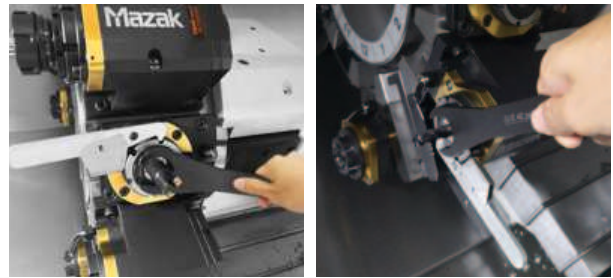
Milling (M, MY, MSY)

Rotary tools can be mounted at any turret position for tool layout flexibility. Since the spindle C-axis can be indexed in 0.0001° increments, high accuracy milling can be performed at any angle.



Quick-Change Mill holder

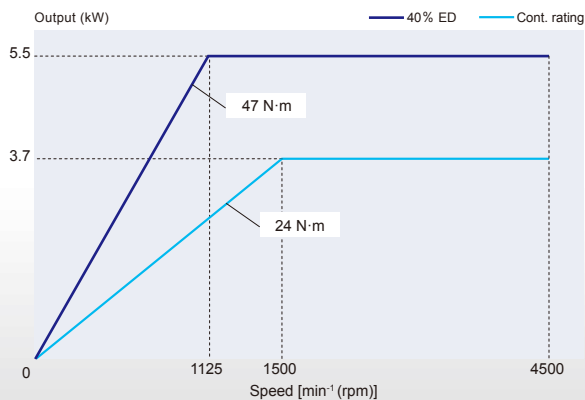
The new milling holder provides considerably improved cutting performance. Tools can be mounted / removed easily by using a one-hand wrench.



simplified tool changing

4500 min⁻¹ (rpm) milling spindle

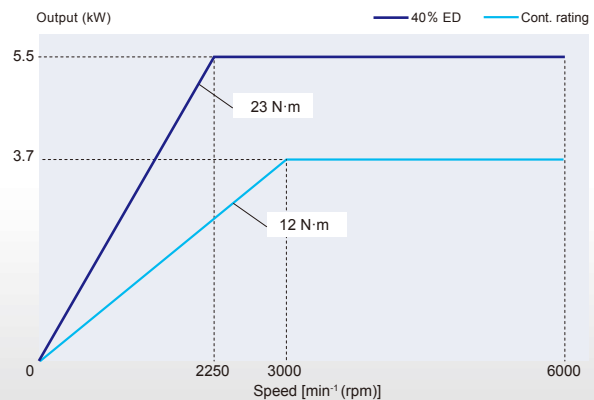
Max. milling spindle speed	4500 min ⁻¹ (rpm)
Output (40% ED)	7.4hp (5.5 kW)
Max. torque (40% ED)	34.7lbf-ft (47 N·m)
Drill / endmill	Φ20 mm
Tap	M20 × 2.5



6000 min⁻¹ (rpm) milling spindle

OPTION

Max. milling spindle speed	6000 min ⁻¹ (rpm)
Output (40% ED)	7.4hp (5.5 kW)
Max. torque (40% ED)	17lbf-ft (23 N·m)
Drill / endmill	Φ20 mm
Tap	M20 × 2.5



Higher Productivity

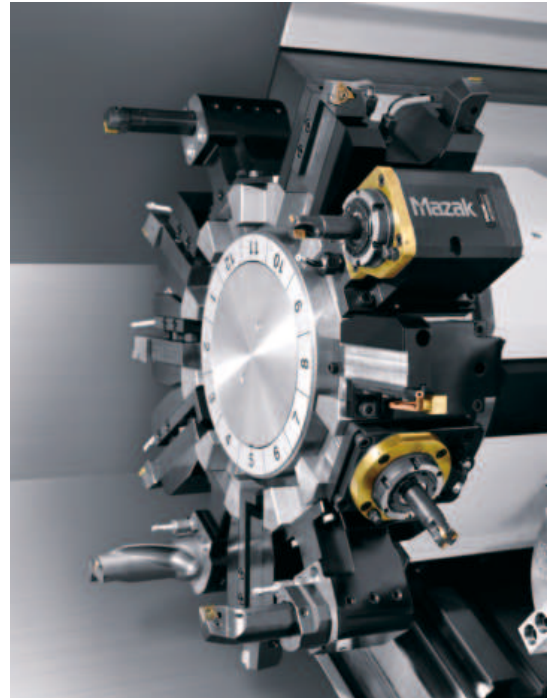
Turrets

The 12 position drum turret is designed for minimum interference. Thanks to the use of servo motor, the turret performs high-speed, non-lift indexing smoothly with minimum interference.

12 position 2-axis turret



12 position milling turret



Models	Number of tools	Turret type	Tool shank	Boring bar shank diameter
2-axis	12 position	Drum	□1.0in	Φ1.25in
M, MY, MSY	12 position	Bolt-on	□1.0in	Φ1.5in

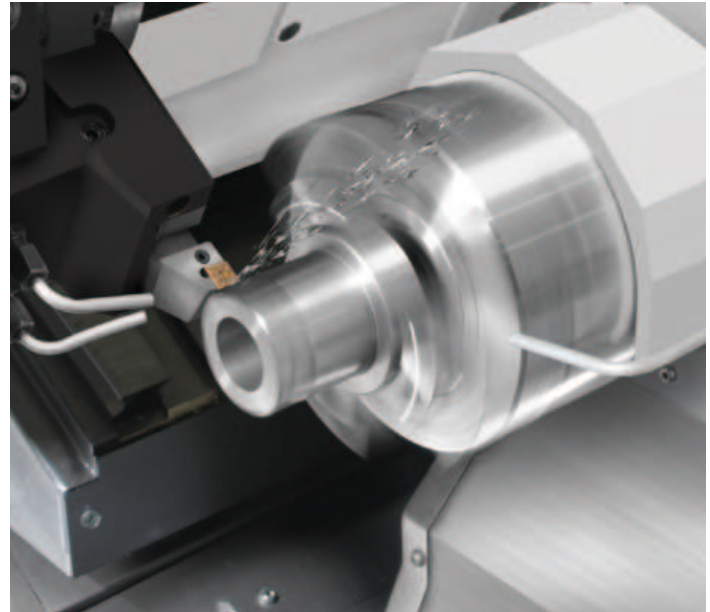
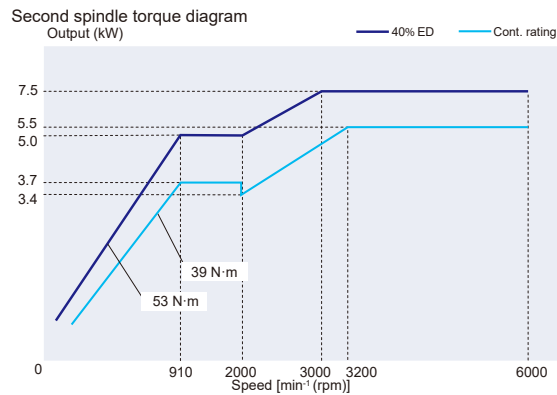
Higher Productivity

Second spindle (MSY)

The second spindle, with integral spindle/ motor construction, allows the workpiece to be transferred from the main spindle for continuous 1st to 2nd process machining. The second spindle C-axis can be indexed by 0.0001° increments, with contouring optionally available.

Second spindle (MSY) specification

Spindle speed	6000 min ⁻¹ (rpm)
Output (40%ED)	10hp (7.5 kW)
Max. torque (40% ED)	39lbf-ft (53 N·m)
Chuck size	100MSY 5"



Y-axis (MY, MSY)

The compound slide Y-axis enables multi-tasking machining of large workpieces in a compact machine. The Y-axis stroke of 3.94"(±1.97") allows for off-center machining of complex workpieces.



Higher Productivity

NC tailstock

Servo motor driven NC tailstock

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 capability ensures high accuracy turning even for small diameter shaft workpieces. Operation is much easier compared to manual carriage movement or hydraulic / pneumatic positioning methods.

Live Center (dead quill)



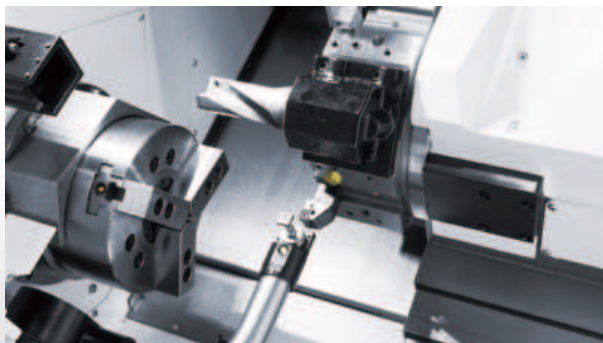
	2-axis
Tailstock center	MT No.4 Live center
Min. thrust	1000 N (101 kgf)
Max. thrust	2500 N (254 kgf)

	M, MY
Tailstock center	MT No.5 Live center
Min. thrust	600 N (61 kgf)
Max. thrust	2000 N (203 kgf)

Tool eye

The tool eye can be programmed for automatic tool measurement and compensation as well as inspection for tool breakage.

Tool setup time is considerably reduced as tool setup is done by simply bringing the tool tip into contact with the tool eye.



Three **Easy** features for higher productivity

MAZATROL *SMOOTH*E*Z*



Ez Setup Digital Setup

- Data on a machine in the factory can be accessed from a PC in the office
- Higher operational efficiency

Ez Machining High-speed high-accuracy machining

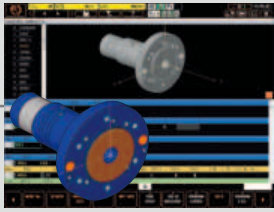
- Heat displacement is controlled with Intelligent Thermal Shield.

Ez Operation

- Equipped with "Quick Mazatrol" for enhanced Mazatrol programming
- Intuitive operation on a 15" touch screen
- Ease of use has been enhanced with screen design and simple layout customization
- All MAZAK controllers incorporate **G-code programming** as well as the industry leading Mazatrol conversational programming.

Ez Setup

Virtual machines on your office PC accurately duplicate the operation of machines on your factory floor. Programs can be made and edited, as well as perform simulation and analysis.



SMOOTH
CAM Ai

OPTION

Solid MAZATROL

A program is automatically generated from 3D CAD data.

Office PC



Ez Operation

QUICK MAZATROL

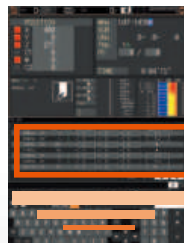
Programs can be easily created and checked by displaying the 3D rendering of the workpiece.

Easily edit a program by touching the display



CUSTOM DISPLAY

The POSITION screen can be configured to include data and machine configuration pages along with the current operating condition of the machine on a single screen.



Data can be checked and set with minimum screen transition by customizing the display according to operation process.

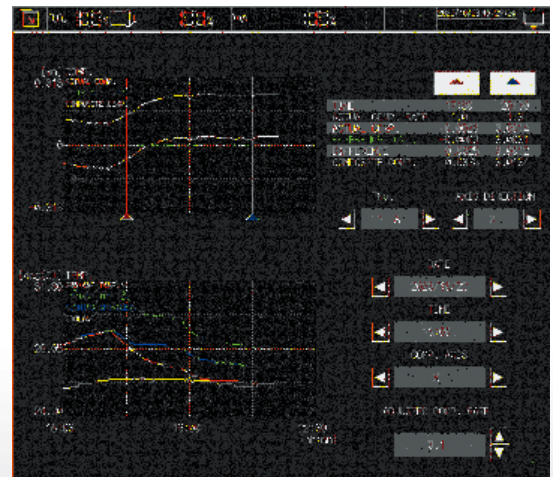
Customized display

- Tool data
- Setup information

Ez Machining

INTELLIGENT THERMAL SHIELD

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.



■ MAZATROL SmoothEz 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 compensation, Smooth corner control, Rapid traverse overlap	
Interpolation	Positioning (interpolation), Positioning (non-interpolation), Linear interpolation, Circular interpolation, Cylindrical interpolation, Polar coordinate interpolation, Constant lead threading, Re-threading*, Thread start point compensation*, Thread cut-speed override*, Synchronous tapping*	Positioning (interpolation), Positioning (non-interpolation), Linear interpolation, Circular interpolation, Spiral interpolation, Helical interpolation, Constant lead threading, Variable lead threading, Threading (C-axis interpolation type), Involute interpolation*, Cylindrical interpolation*, NURBS interpolation*, Polar coordinate interpolation*, Re-threading*, Thread start point compensation*, Thread cut-speed override*, Synchronous tapping
Feedrate	Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Dwell (time / rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate limitation, Variable acceleration control, G0 slope constant*	Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Inverse time feed, Dwell (time / rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate limitation, Time constant changing for G1, Variable acceleration control, G0 slope constant*
Program registration	Number of programs : 256 (Standard) / 960 (Max.), Program memory : 2 MB, Program memory expansion : 8 MB*, Program memory expansion : 32 MB*	
Control display	Display : 15" touch panel Resolution : XGA	
Spindle functions	S code output, Spindle speed limitation, Spindle speed override, Spindle speed reaching detection, Multiple position orient, Constant surface speed, Spindle speed command with decimal digits, Synchronized spindle control, Spindle speed range setting	
Tool functions	Number of tool offset : 4000, T code output for tool number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces), Tool life monitoring (wear)	Number of tool offset : 4000, T code output for tool number, T code output for group number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces), Tool life monitoring (wear)
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	Tool position offset, Tool length offset, Tool diameter / tool nose R 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 sets)	
Machine functions	-	Polygonal machining*, Hobbing*
Machine compensation	Backlash compensation, Pitch error compensation, Thermal shield	
Protection functions	Emergency stop, Interlock, Pre-move stroke check, Barrier	
Automatic operation mode	Memory operation	Memory operation, Tape operation, MDI operation, SD card operation, EtherNet operation*
Automatic operation control	Optional stop, Dry run, Manual handle interruption, MDI interruption, TPS, Restart, Single process, Machine lock	Optional block skip, Optional stop, Dry run, Manual handle interruption, MDI interruption, TPS, Restart, Restart 2, Collation stop, Machine lock
Manual measuring functions	Tool-setting data teach, Tool length teach, Touch sensor coordinates measurement, Workpiece offset measurement, Tool eye measurement	Tool-setting data teach, Tool length 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	
Peripheral network	PROFIBUS-DP*, EtherNet/IP*, CC-Link*	
Interface	SD card interface, USB	
EtherNet	10 M / 100 M / 1 Gbps	

*Option

Standard Machine Specifications

		100 SG	100M SG	100MY SG	100MSY SG
Universal		300U	500U		
Capacity	Max. swing	Φ22.83in	Φ27.36in		
	Max. machining diameter	Φ13.78in	Φ13.39in		
	Max. machining length*1	11.77in	21.81in		
	Distance between chuck top jaw faces*1	—			23.46in
	Bar work capacity	Φ1.77in*2			
Travel	X-axis	7.68in	8.46in		
	Y-axis	—		3.94in(±1.97in)	
	Z-axis	12.8in	23.82in		
Main spindle	Chuck size	6"			
	Spindle speed*1	5000 min ⁻¹ (rpm)	6000 min ⁻¹ (rpm)		
	Number of spindle speed ranges	1-stepless			
	Spindle nose	Flat Φ140h4	A2-5		
	Spindle bore	Φ2.09in	Φ2.4in		
Second spindle	Chuck size	—			5"
	Spindle speed*1	—			6000 min ⁻¹ (rpm)
	Number of spindle speed ranges	—			1-stepless
	Spindle nose	—			A2-5
	Spindle bore	—			Φ2.09in
Turret	Turret type	12 position drum turret (bolt-on)			
	Number of tools	12 tools			
	Tool shank height	1.0in			
	Boring bar shank diameter	Φ1.25in	Φ1.5in		
	Turret indexing time	0.15 sec / 1 step	0.23 sec / 1 step		
Rotary tool spindle	Spindle speed	—	4500 min ⁻¹ (rpm) [option : 6000 min ⁻¹ (rpm)]		
	Milling capacity	—	Drill : Φ20 mm		
Feedrate	Rapid traverse rate : X-axis	1,181 in/min			
	Rapid traverse rate : Y-axis	—		394 in/min	394 in/min
	Rapid traverse rate : Z-axis	1,181 in/min			
	Rapid traverse rate : C-axis	—	555 min ⁻¹ (rpm)		
Tailstock	Tailstock stroke	12.795in	22.244in		—
	Tailstock center	MT No.4 live center	MT No.5 live center		—
Motors	Main spindle motor (short-duration rating / cont. rating)	11 kW (15 HP) (25% ED) / 7.5 kW (10 HP)	15 kW (20 HP) (40%ED) / 11 kW (15 HP)		
	Second spindle motor (40% ED / cont. rating)	—			7.5 kW (10 HP) / 5.5 kW (7.5 HP)
	Rotary tool spindle motor (40% ED / cont. rating)	—	5.5 kW (7.5 HP) / 3.7 kW (5 HP)		
Power requirement	Required power capacity (cont. rating)	14.5 kVA	20.64 kVA	21.12 kVA	22.12 kVA
	Air supply	0.5 MPa (5 kgf/cm ²) 75 L / min			
Tank capacity	Coolant tank capacity	160 L	185 L		
Machine size	Machine height	66.93in	67.91in		
	Width × length*5	74.8in × 62.6in	106.5in ×66.54in		
	Weight	3250 kg	4400 kg	4600 kg	4800 kg

*¹ Depends on chuck specifications

*² When using the standard through-hole chuck B206A515+SR1146C

■ Standard and Optional Equipment

QTE-100 series

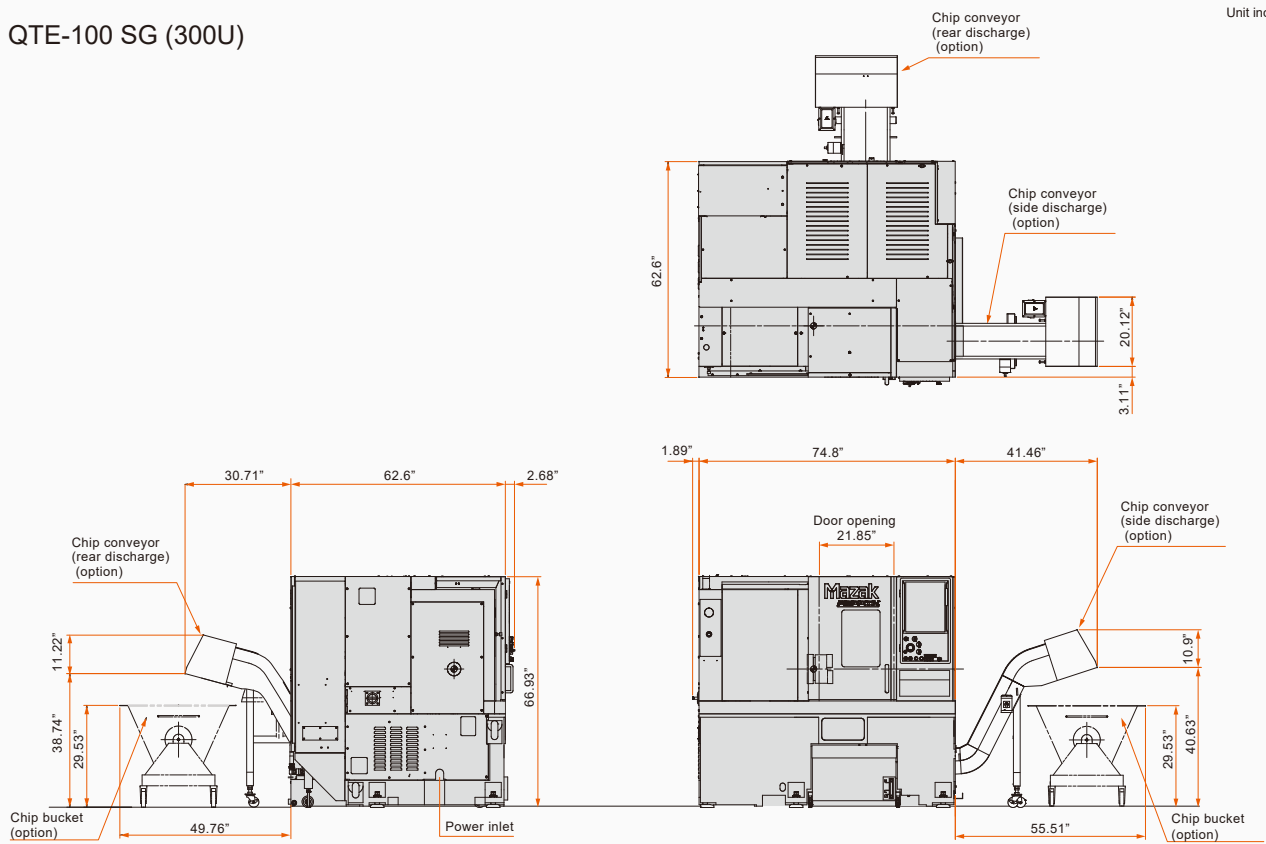
● : Standard ○ : Option — : N/A

		100 SG	100M SG	100MY SG	100MSY SG
Machine	Main spindle 6" through-hole chuck B-206			●	
	Main spindle 0.0001° indexing, C-axis contouring control	—		●	
	Second spindle 0.0001° indexing		—		●
	Second spindle 0.0001° indexing, C-axis contouring control		—		○
	Second spindle 5" through-hole chuck B-205		—		●
	12 position drum turret (bolt-on tool holder)	○		●	
	4500 min ⁻¹ (rpm) rotary tool	—		●	
	6000 min ⁻¹ (rpm) rotary tool	—		○	
	Tailstock center (MT No.4 live center)	●		—	
	Tailstock center (MT No.5 live center)	—		●	—
	Work light			●	
Productivity options	Absolute position detection			●	
	Spindle orient			○	
	Tool eye (automatic)			●	
	Automatic chuck jaws open / close		○		●
	Chuck jaws air blast (main spindle)			○	
	Chuck jaws air blast (second spindle)		—		●
	Workpiece automatic measurement	—		○	
	Bar feeder interface kit			○	
	Auto parts catcher			○	
	Work discharge conveyor			○	
	Automatic opening / closing front door			○	
	Calendar automatic power ON / OFF + warm-up operation			○	
	Automatic power OFF			●	
	Machining finish buzzer			○	
	Status light (3 colors)			○	
	Status light (1 color)			○	
	Robot interface			○	
	Additional M code function			○	
Safety equipment	Chuck jaw open / close confirmation			●	
	Hydraulic pressure interlock			●	
	Double foot pedal chuck switch			○	
	Earth leakage breaker			○	
	Overload detection system			○	
Coolant / Chip disposal	Chip pan			●	
	Chip conveyor side discharge			○	
	Chip conveyor rear discharge		○		—
	Preparation for chip conveyor (side discharge)			○	
	Preparation for chip conveyor (rear discharge)		○		—
	Chip bucket (rotary)			○	
	Chip bucket (fixed)			○	
	Coolant temperature control			○	
	Turret air blast			○	
	Additional coolant nozzle on headstock side			○	
	Mist collector			○	
	Coolant system			●	
	Powerful coolant (520 W)			○	
	Powerful coolant (1.1 kW)			○	
Others	Manuals			●	
	Set of adjusting tools			●	

Machine Dimensions

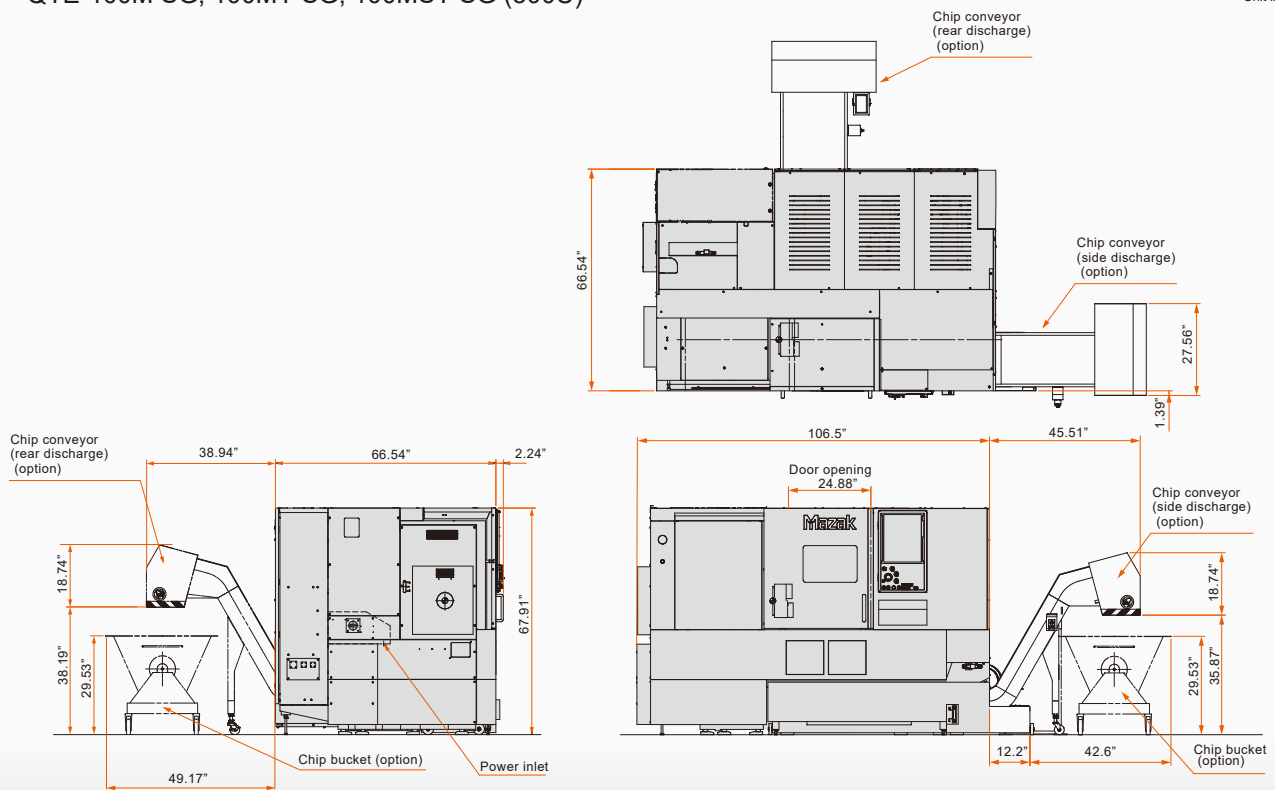
QTE-100 SG (300U)

Unit inch



QTE-100M SG, 100MY SG, 100MSY SG (500U)

Unit inch





SINGLE SOURCE SERVICE

Mazak is a single point of contact for any Mazak-related service need, whether it involves a machine, control, accessory or automation solution. This effective service approach helps customers maintain the highest possible levels of productivity.

TECHNICAL SUPPORT

Comprehensive two-year warranties on every Mazak machine tool, paired with local support from a network of Technology and Technical Centers and expert technical service through the company's Remote Assist Services.

PARTS SUPPORT

Identify, order and receive the replacements you need with unprecedented speed and ease through online access to every aspect of parts support. Whether you need a small part or a CNC repair, you're covered 24/7.

TRAINING

Learn to operate, program and maintain your Mazak machine tools so you obtain the full value of your equipment, from installation throughout its working life. Take a self-paced course through our MPower On-Demand Learning (MODL) system, schedule an in-person class at one of our Technology or Technical Centers, or sign up for a customized seminar in your shop.

SPINDLE AND UNIT REBUILD

Mazak's cost-effective Spindle Rebuilding Services offer customers fast and precise spindle rebuilding under the MPower umbrella. The Mazak Spindle Rebuild Department raises the bar in terms of efficiency and quality in OEM-factory-certified machine tool spindle rebuild services that significantly reduce customer downtime.

Technical and Technology Centers

National Technology Center

Florence, Kentucky
1-800-331-9151

Northeast Technology Center

Windsor Locks, Connecticut 06096
(860) 292-4400

Southeast Technology Center

Suwanee, Georgia 30024
(678) 985-4800

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Orlando, FL 32822
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Midwest Technology Center

Schaumburg, Illinois 60173
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Southlake, Texas 76092
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