



YAMAZAKI MAZAK CORPORATION

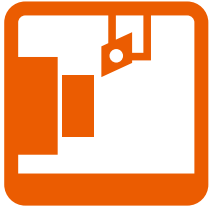
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[www.mazak.com](http://www.mazak.com)

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QT-COMPACT SERIES SmoothCNC 16.06.3000 S 99J195716E0 

QT-COMPACT SERIES



QT-COMPACT  
S E R I E S

100M	100MS	100MY	100MSY
200M	200MS	200MY	200MSY
300M	300MS	300MY	300MSY



# Advanced features of the MAZATROL SmoothC CNC

CNC system with the essentials for your programming requirements

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



**MAZATROL**  
**SMOOTH C**

QT-COMPACT SERIES

Designed to meet your production requirements  
and provide you the maximum value -

- QT-COMPACT M : Milling Spindle
- QT-COMPACT MY : Milling Spindle and Y-Axis
- QT-COMPACT MS : Milling Spindle and Second Spindle
- QT-COMPACT MSY : Milling Spindle, Second Spindle and Y-Axis

- Integral spindle/motor for high-performance and exceptional accuracy  
Spindle C-axis can be indexed in 0.0001° increments
- Linear roller guides on all axes assure  
high rigidity for high productivity machining
- Designed for ease of operation



QT-COMPACT 300MY 500U  
Shown with optional status light and tool eye



QT-COMPACT 300MY 1000U  
Shown with optional status light and tool eye

High-Performance CNC Turning Centers  
**QT-COMPACT SERIES**



# Extensive Series Range

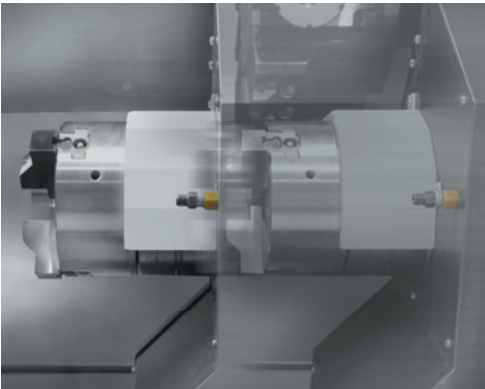
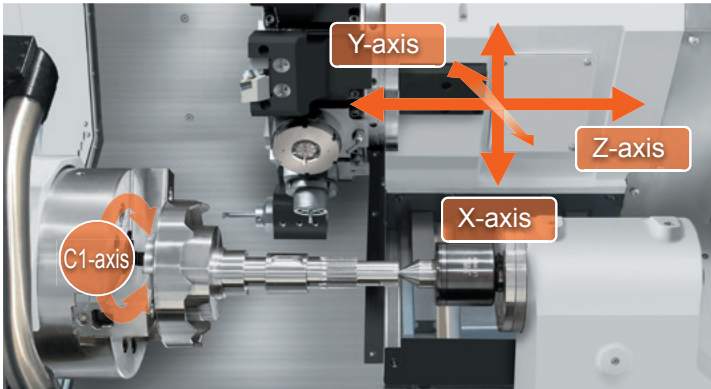
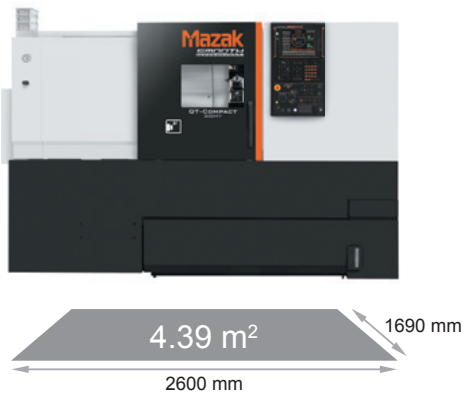
All QT-COMPACT models feature an integral spindle/motor and milling capability. Y-axis, second spindle and tailstock specifications are available to best meet your production requirements.

Perform high-productivity machining in a small space - floor space requirements for the 500U is just 4.39 m² and 5.96 m² for the 1000U.

	Chuck size	Main spindle	Turret	Y-axis	Second spindle	Tailstock	Universal	
100M	6"	167 N·m 6000 min <sup>-1</sup>	12 position bolt-on tool holders Rotary tool 5.5 kW 47 N·m 4500 min <sup>-1</sup>			MT No.5 Dead center	500 U	
100MY				100 (±50) mm				
100MS					5"			
100MSY				100 (±50) mm	6000 min <sup>-1</sup> 53 N·m			
200M	8" (option) 10"	167 N·m 5000 min <sup>-1</sup>	12 position bolt-on tool holders Rotary tool 5.5 kW 47 N·m 4500 min <sup>-1</sup>	100 (±50) mm		MT No.5 Dead center	500 U	1000 U
200MY				100 (±50) mm				
200MS					6"			
200MSY				100 (±50) mm	6000 min <sup>-1</sup> 53 N·m			
300M	10"	356 N·m 4000 min <sup>-1</sup>	12 position bolt-on tool holders Rotary tool 5.5 kW 47 N·m 4500 min <sup>-1</sup>	100 (±50) mm		MT No.5 Dead center	500 U	1000 U
300MY				100 (±50) mm				
300MS					6"			
300MSY				100 (±50) mm	6000 min <sup>-1</sup> 53 N·m			

## QT-COMPACT 500U

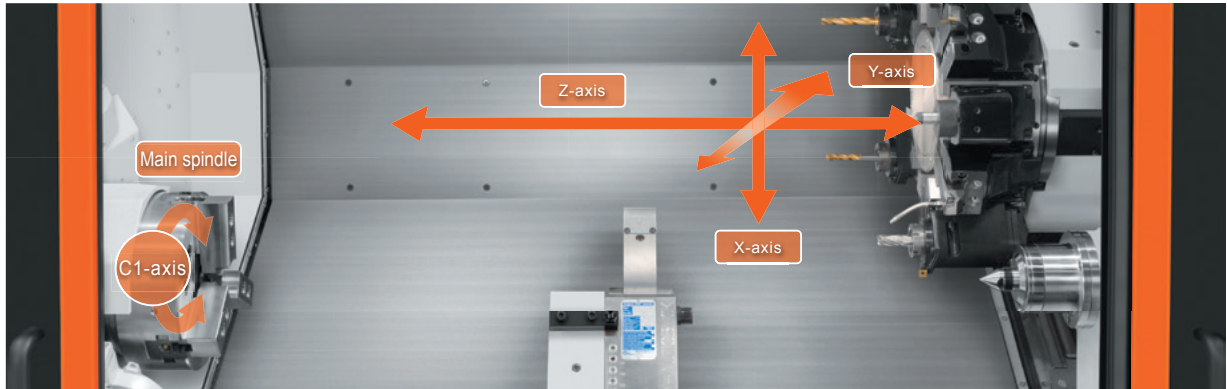
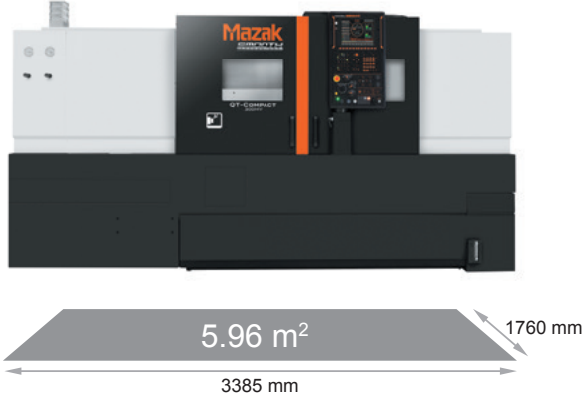
Same 4.39 m² floor space requirement for all QT-COMPACT 500U models 100M to 300MSY.



MS / MSY

## QT-COMPACT 1000U

The 1000U is available for longer workpieces. 1000U machines have a floor space requirement of 5.96 m². (Except MS and MSY versions)

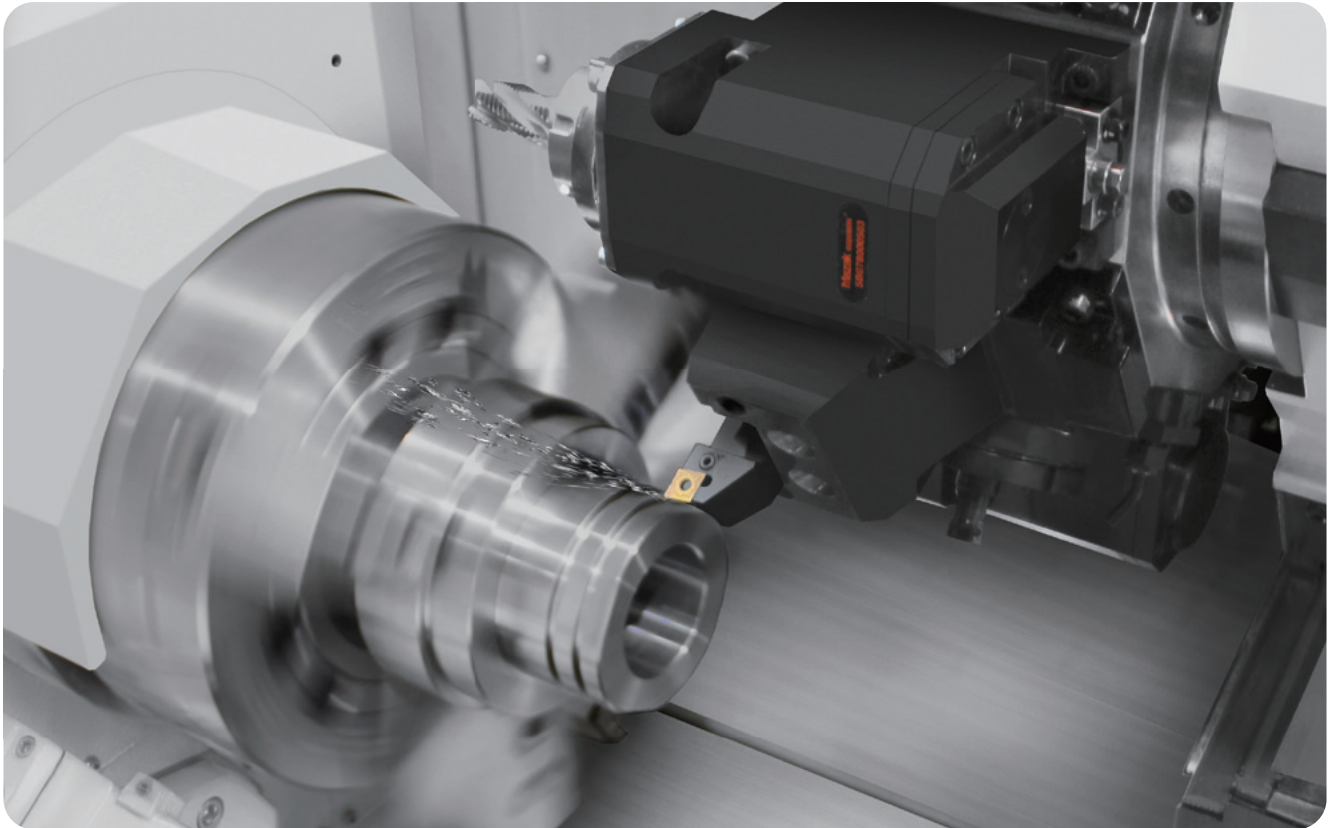
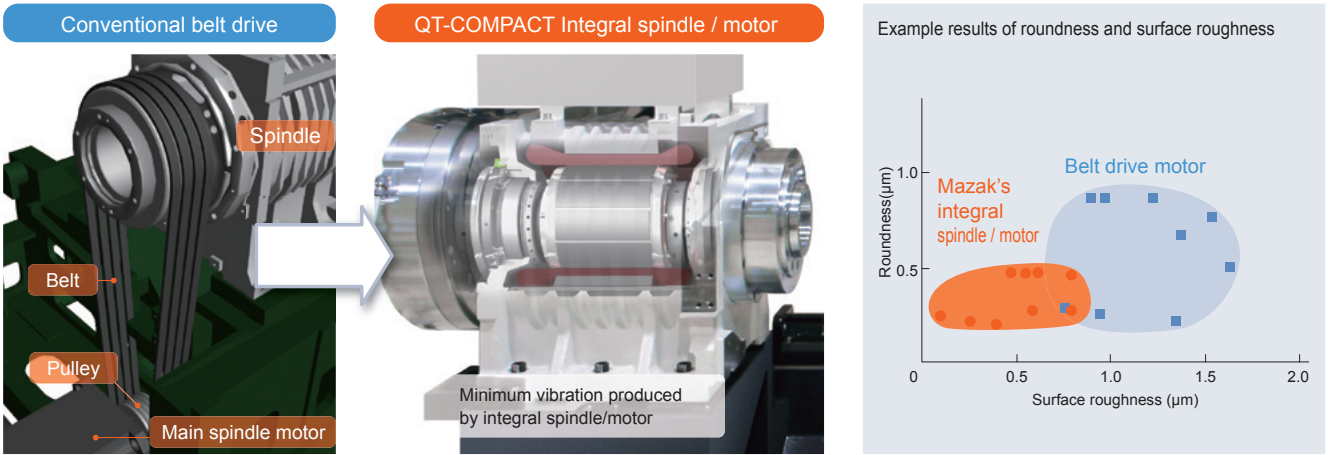


# Higher Productivity

## Main spindle - integral spindle / motor ensures high productivity and high accuracy

The QT-COMPACT 100, 200, and 300 models 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.

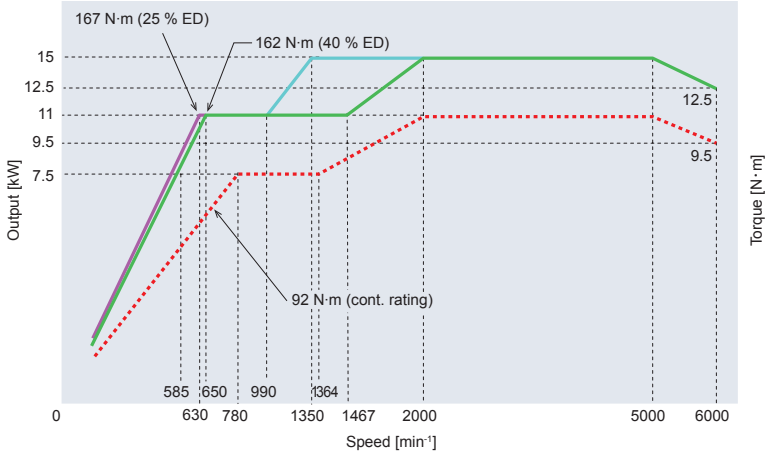
The spindle C-axis can be indexed by 0.0001° increments and can also perform contouring (standard equipment).



### QT-COMPACT 100 series

Speed	6000 min <sup>-1</sup>
Output (40 % ED)	AC15.0 kW
Torque (25 % ED)	167 N·m
Chuck size	6"
Spindle bore	Φ61 mm

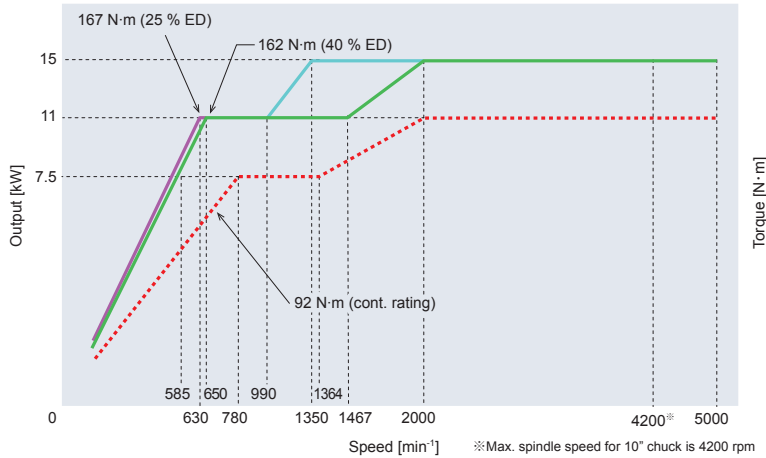
— [N·m] 15 % ED      — [N·m] 40 % ED  
— [N·m] 25 % ED      ··· [N·m] cont. rating



### QT-COMPACT 200 series

Speed	5000 min <sup>-1</sup>
Output (40 % ED)	AC15.0 kW
Torque (25 % ED)	167 N·m
Chuck size	8"(10" : option)
Spindle bore	Φ76 mm

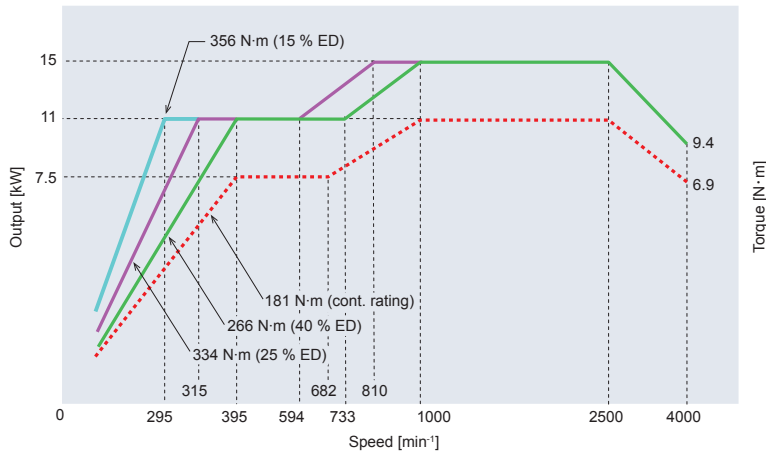
— [N·m] 15 % ED      — [N·m] 40 % ED  
— [N·m] 25 % ED      ··· [N·m] cont. rating



### QT-COMPACT 300 series

Speed	4000 min <sup>-1</sup>
Output(40 % ED)	AC15.0 kW
Torque (15 % ED)	356 N·m
Chuck size	10"
Spindle bore	Φ91 mm

— [N·m] 15 % ED      — [N·m] 40 % ED  
— [N·m] 25 % ED      ··· [N·m] cont. rating

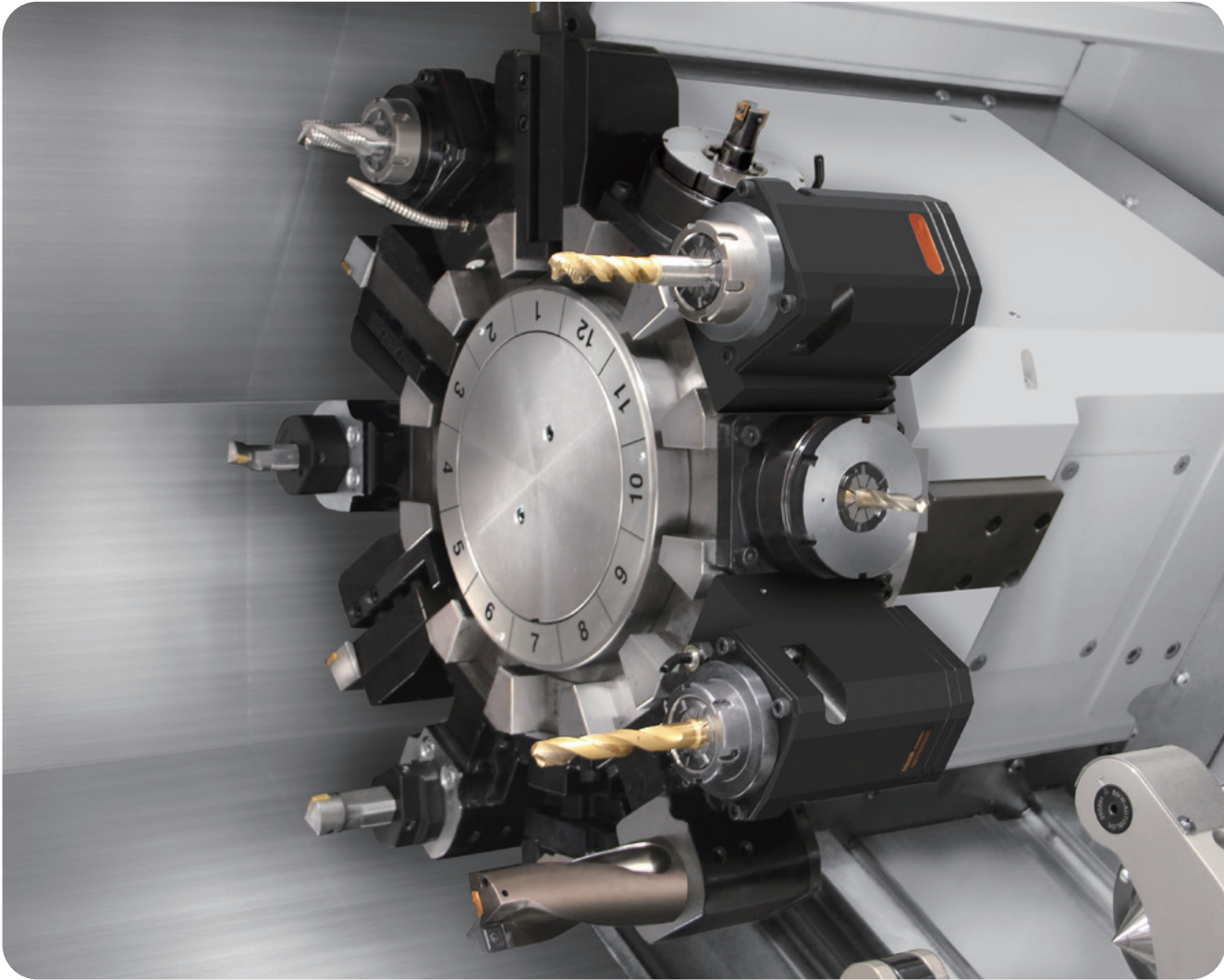




# Higher Productivity

## 12 position turret with high speed indexing

12 position drum turret is designed to provide reduced tool interference. Thanks to the non-lift rotary indexing, clamping and unclamping can be done at high speed to realize minimum chip-to-chip time.

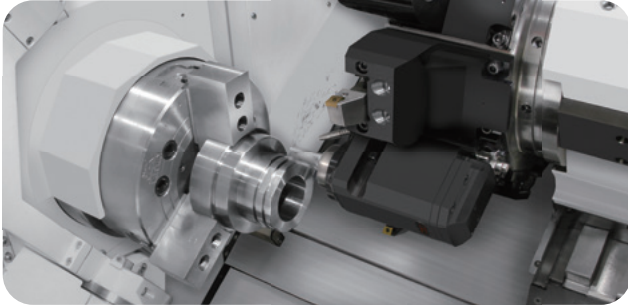


Turret type	Bolt-on type	
Tool capacity	12 tools	
OD turning, facing tool	□25 mm × 150 mm	
Boring bar shank	Φ40 mm	
Turret indexing time	1 step	0.23 sec
	6 steps	0.63 sec

The bolt-on tool holders are easily mounted on the turret by 4 bolts. The wide space between adjacent tools provides a large interference-free machining diameter when end milling and OD turning.

## Milling

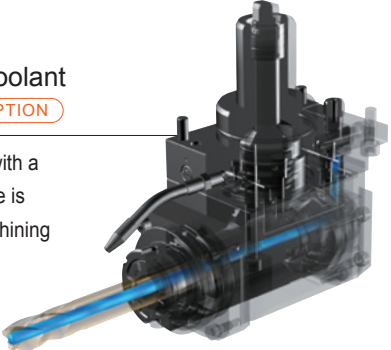
Rotary tools can be mounted at any turret position for tool layout flexibility. Since the spindle C-axis can be indexed in 0.0001° increments, high accuracy milling can be performed at any angle.



### Milling holder with coolant through-tool

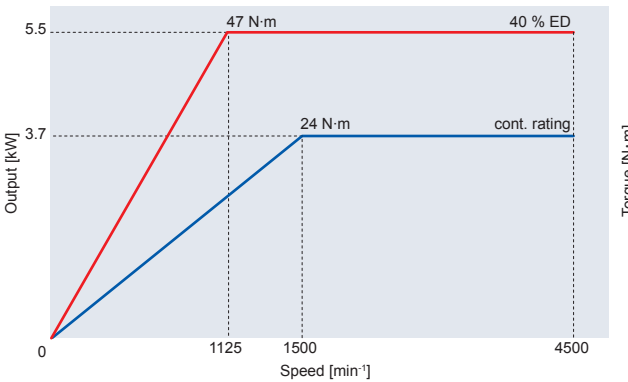
OPTION

The optional milling holder with a coolant through tool passage is effective for a variety of machining applications such as deep hole-drilling.



### 4500 min<sup>-1</sup> milling spindle

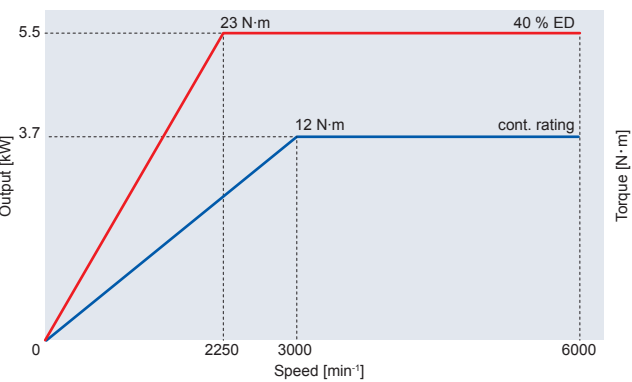
Max. milling spindle speed	4500 min <sup>-1</sup>
Output	5.5 kW
Max. torque	47 N·m
Drill / endmill	Φ20 mm
Tap	M20 × 2.5



### 6000 min<sup>-1</sup> milling spindle

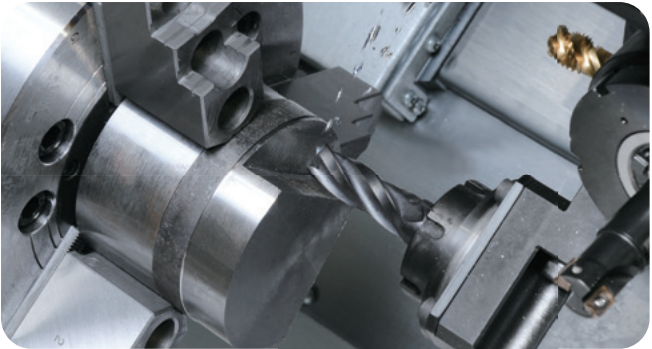
OPTION

Max. milling spindle speed	6000 min <sup>-1</sup>
Output	5.5 kW
Max. torque	23 N·m
Drill / endmill	Φ20 mm
Tap	M20 × 2.5



## Y-axis (MY, MSY)

Thanks to the Y-axis double-slide design, large diameter multi-tasking machining can be performed even in a compact machine. Long Y-axis stroke: 100 (±50) mm allows machining of complex and large workpieces.





# Higher Productivity

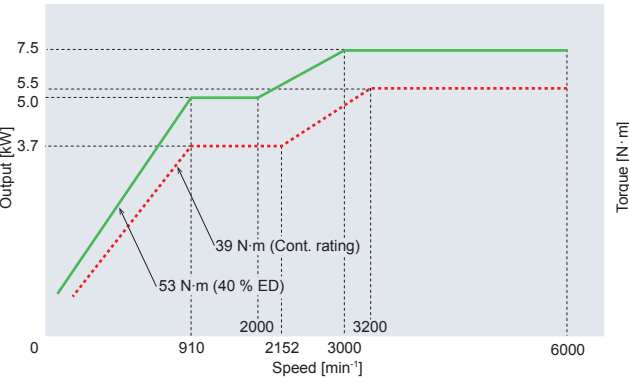
## Second spindle (MS,MSY)

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

Second spindle (MS, MSY) specifications

Spindle speed		6000 min <sup>-1</sup>
Output		7.5 kW
Max. torque		53 N·m
Chuck size	100MS 100MSY	5"
	200MS 200MSY	6"
	300MS 300MSY	

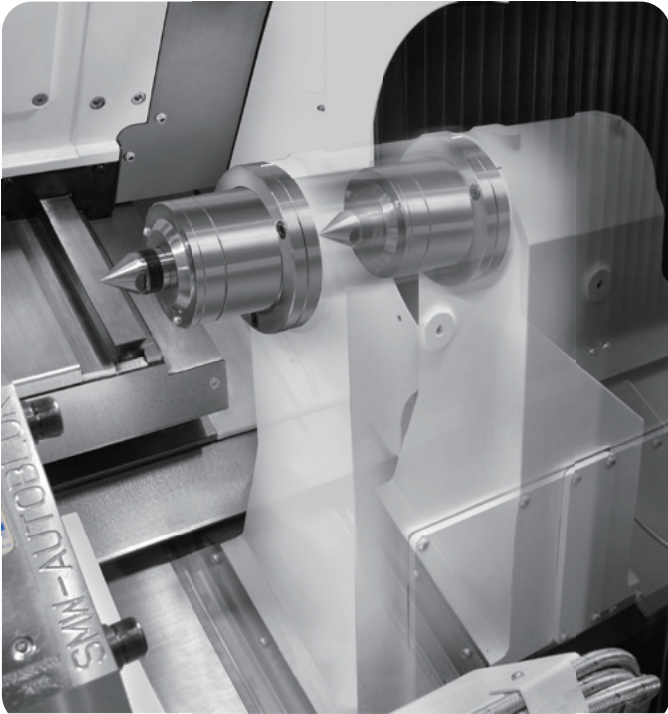
Second spindle torque diagram      — [N·m] 40 % ED      - - - [N·m] Cont. rating



## NC Tailstock (M,MY)

Since the tailstock is equipped with servo motor control, the tailstock travel and thrust can be set by program for ease of operation. Thrust can be set by 0.1 kN increments while pushing the workpiece for optimum thrust according to workpiece material, shape and diameter.

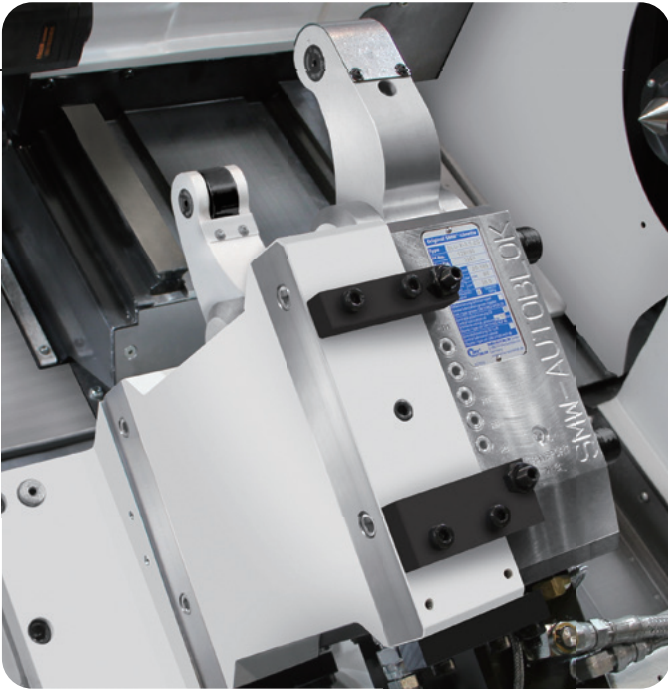
Models	Tailstock center
100M 500U	MT No.5 Dead center
100MY 500U	MT No.4 Built-in center <span>OPTION</span>
200M 300M 500U	MT No.5 Dead center
200MY 300MY 500U	MT No.4 Built-in center <span>OPTION</span>
200M 300M 1000U	No.4 Built-in center
200MY 300MY 1000U	



## Steady rest (1000U) 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.

Models	Steady rest	Max. workpiece diameter
1000U	SMW SLUA-3.1Z	Φ22 mm~Φ150 mm
	SMW SLUX-3.1Z	Φ20 mm~Φ150 mm



Advanced machine and control technology ensures high productivity for a wide variety of applications

QT-COMPACT300MS  
chuck workpiece  
machining example

Workpiece	Industrial machinery component
Material	Carbon steel (S45C)
Size	Φ180 mm × 80 mm
Cycle time	4 minutes 15 seconds

QT-COMPACT 300MSY shaft  
workpiece machining example

Workpiece	Industrial machinery component
Material	Carbon steel (S45C)
Size	Φ65 mm × 230 mm
Cycle time	15 minutes 45 seconds

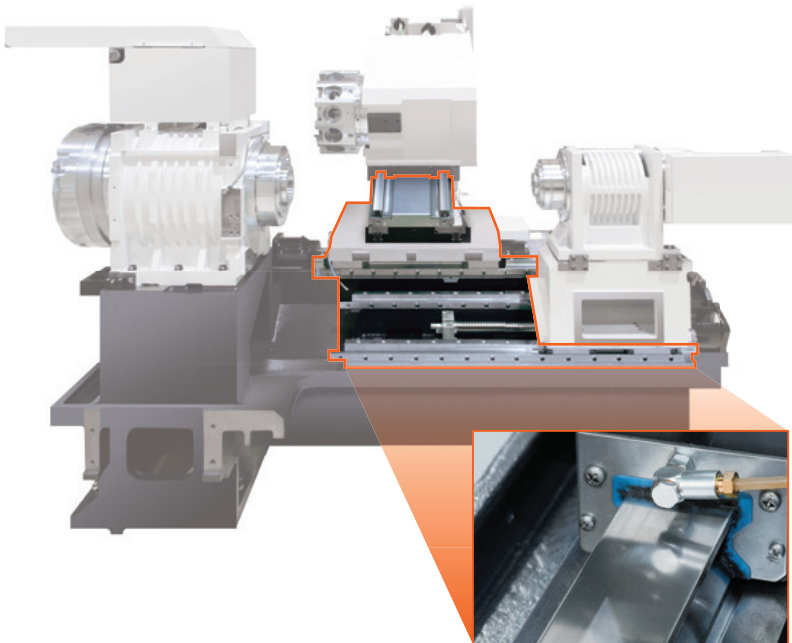




# Higher Accuracy

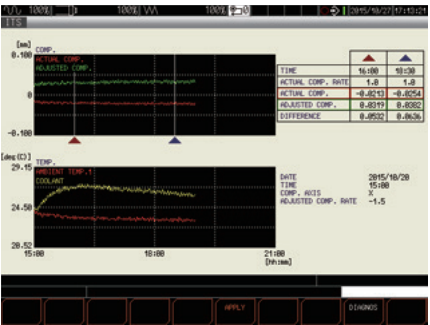
## Roller guides utilized by the X and Z axes

The highly rigid linear roller guides utilized by the QT-COMPACT series on the X and Z axes provide higher accuracy positioning with lower friction.



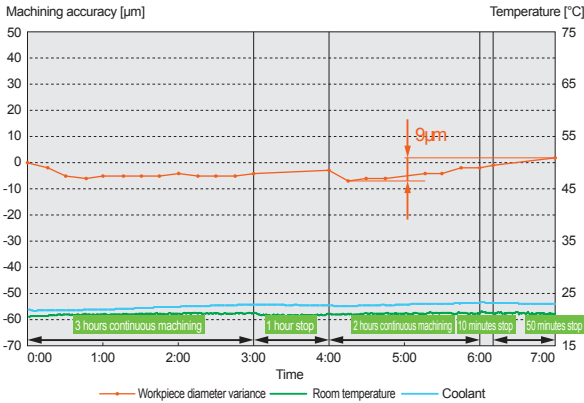
## Heat Displacement Control INTELLIGENT THERMAL SHIELD

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.

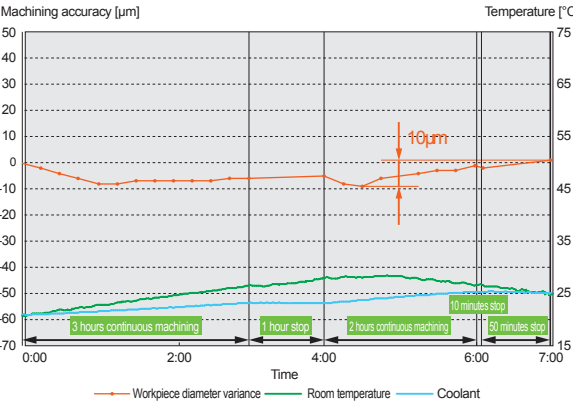


Machine : QT-COMPACT 300MY

Controlled Room Temperature



Room temperature change : 8 °C



# Operator Friendly

## Design focus on ergonomics provides unsurpassed ease of operation and maintenance



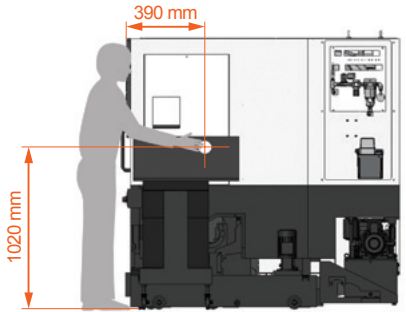
### Ease of maintenance

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



### Convenient setup

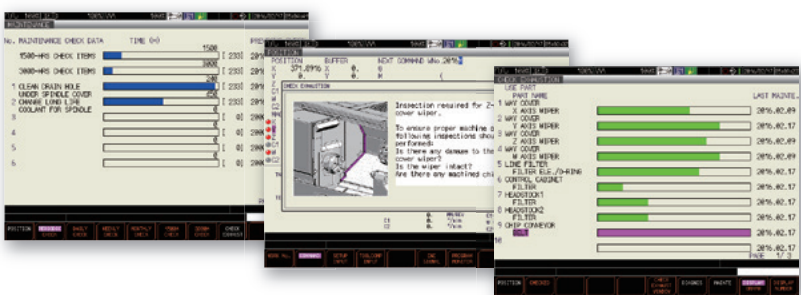
The distance from the front cover to the spindle center line is short for convenient setup and workpiece loading/unloading.



## Comprehensive Maintenance Monitor

## INTELLIGENT MAINTENANCE SUPPORT

Useful information for improved preventative maintenance to prevent unexpected machine downtime





# Ease of Programming

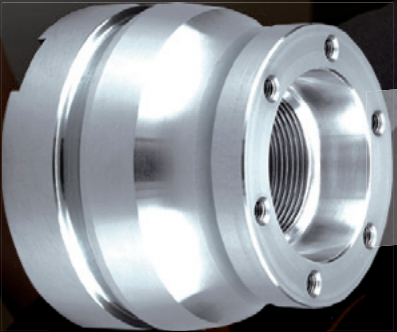
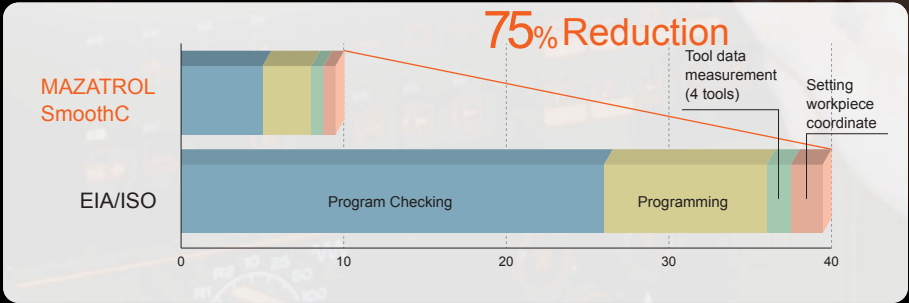
The MAZATROL SmoothC CNC incorporates the latest advanced hardware and software as well as the expertise accumulated in the production of MAZATROL CNC systems for more than 35 years. It is designed to provide high-productivity performance in the machining of your production requirements. Unsurpassed ease of operation is provided by conversational MAZATROL programming which makes it possible for even an inexperienced operator to quickly and easily make machining programs.



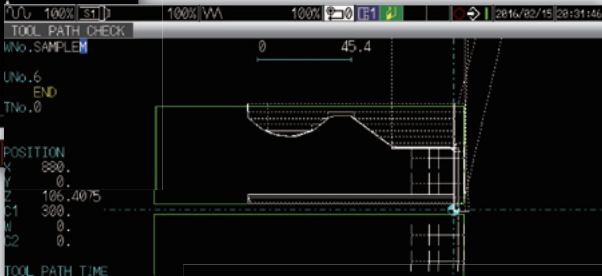
**Process home screen**  
The home screen displays overall process status in an easy to understand manner.

## 75% reduction of setup time for the first workpiece

With the MAZATROL SmoothC, setup of the first workpiece from programming to tool path check, tool setup, and work coordinate setup can be conducted in a very short period of time. Compared with other CNC systems, setup of the first workpiece can be reduced by as much as 75%. Short setup times are especially effective for the production of a wide variety of parts in small size lots. Additionally, MAZATROL programs are smaller than EIA / ISO programs, so that checking, saving and editing can be done easily.



**Programming**  
Ease of programming by MAZATROL conversational programming



**Tool path check**  
By tool path simulation, the accurate machining cycle time is quickly obtained

**Tool data**  
Tool data can be easily input by using the graphical help display

INo.	TOOL	FW/RV R/L	NOSE-R ACT-0	CUT ANGLE GRV DEPTH	EDG-ANG TIP-WID	WIDTH TEETH	LENG COMP.	MAX ROT.
1	GENERAL	OUT	LF	0.8	95.	80.	25.	0
2	END MILL	OUT	AN	57.		0	0.	0
3	END MILL	OUT	AN	16.		0	0.	0
4	GROOVE	OUT	LF	0.	20.	4.	25.	0
5	GROOVE	EDGE	LF	0.4	30.	5.	25.	0
6	CHAMFER	OUT	AN	6.		2	0	0
7	GENERAL	OUT	RG	0.4	95.	55.	10.	0
8	END MILL	OUT	AN	6.		0	0.	0
9	DRILL	OUT	AN	6.		140.	2	1.0919
10	GENERAL	OUT	LF	0.4	95.	55.	25.	0

[OUT] [WIDTH] [IN] [EDG]

TOOL SET MEASURING POINT

PAGE 1 / 2

MACHINING PART OF TOOL <MENU> ?

OUT

IN

EDG

IN

EDG

HELP

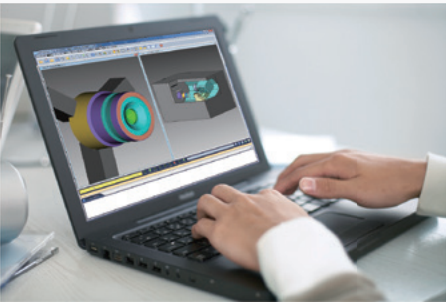
2016/03/17 00:13:44

IN (IN)

EDG (EDG)

POSITION	BUFFER	NEXT COMMAND	WNo.SAMPLE
X 294.	X 0.	G	( )
Y 0.	Y 0.	M	( )
Z 425.13	Z 0.	T	UNO. 0 - 0 - 0 ( )
C 0.	C 0.	A	COUNTER 0( 0)
W 0.	W 0.		
MACHINE	REMAIN	NOW COMMAND	<MODAL>
X 0.	X 0.	G	S 0. F 0. M 0 A 0
Y 0.	Y 0.	G	G 0 G 18 G 23 G 98 G 21 G 40
Z 0.	Z 0.	OFFSET	G 80 G 53.5 G 64
C 0.	C 0.	Z -115.13	G 69 G 67 G 97 G 123
W 0.	W 0.	C 0.	G 123.16111 G 50.2 G 113 G 13.1
TNo. 1 - 0	GROOVE	OUT	
Z-OFFSET	-115.13	T. SPDL	
C-OFFSET	0.	JAW No. 1	
COUNTER		GRIP DIA 100.	
TAIL STOCK		TAIL STOCK	UNUSED
REF. TO T/S		TAIL POS.1	
TAIL POS.2			

**Position Screen**  
Data such as the Z offset and C offset can be easily input



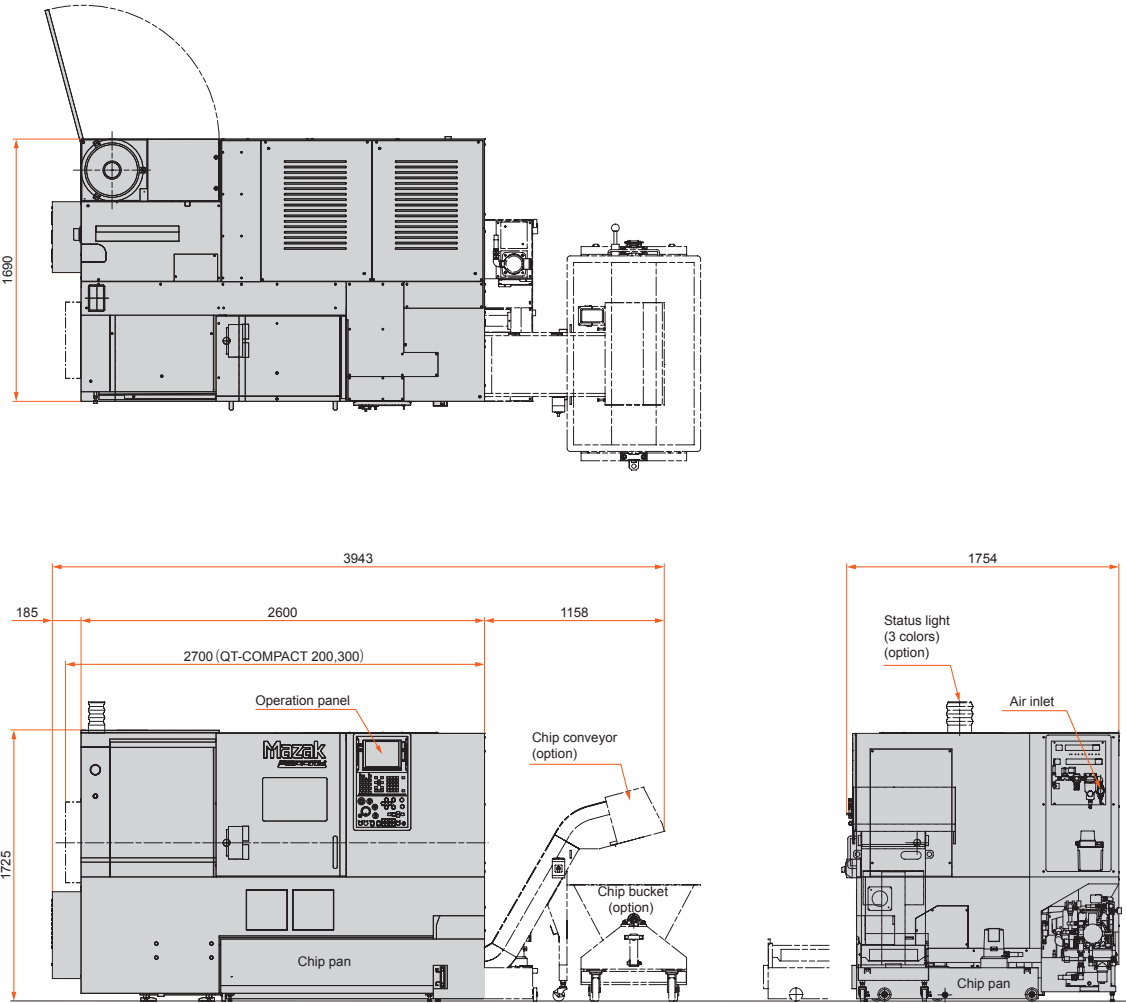
**3D machine model**  
A 3D machine model is available to perform program interference checks with other CAD / CAM simulation software.



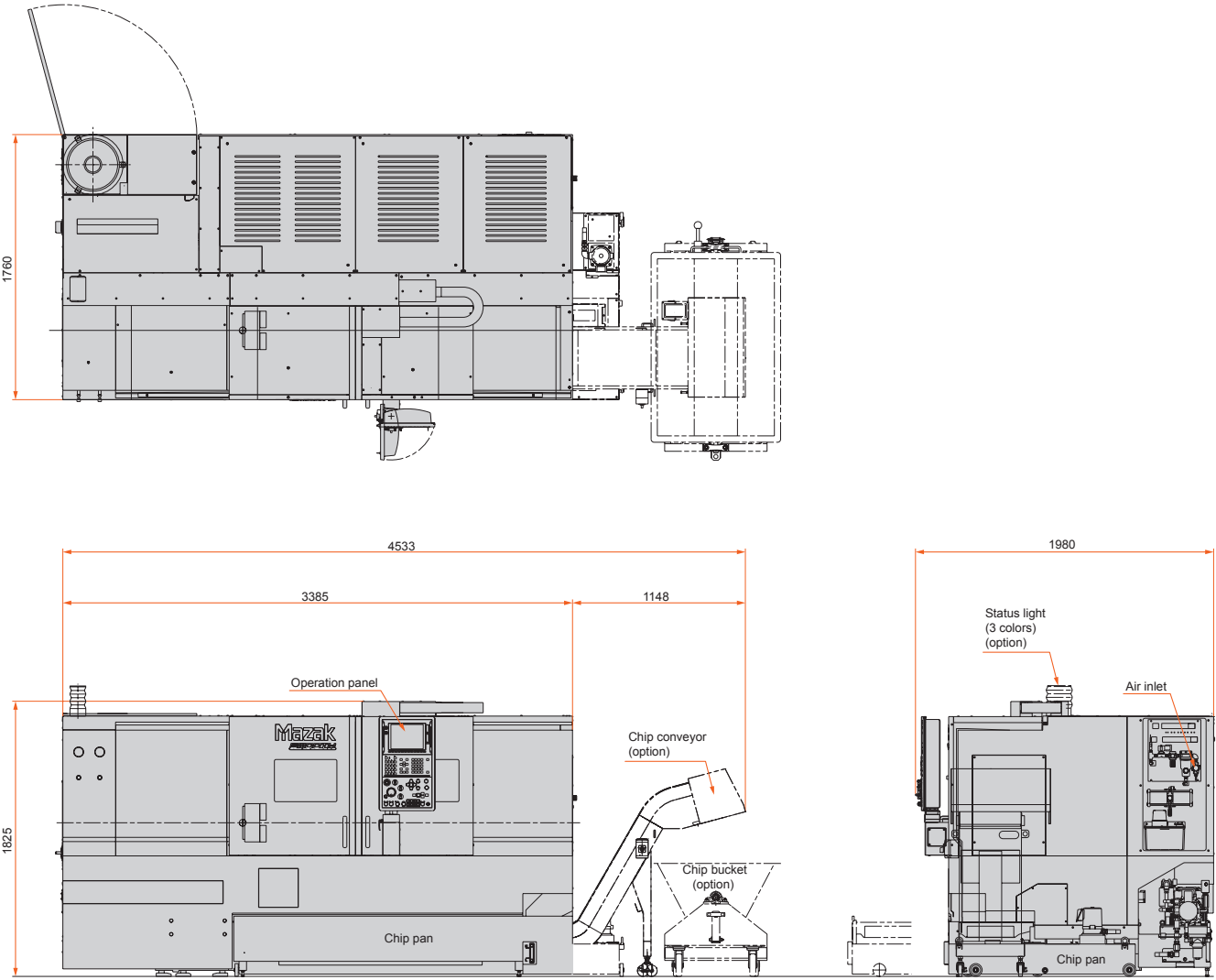
Machine Dimensions

Unit : mm

QT-COMPACT 100, 200, 300 500U



QT-COMPACT 100, 200, 300 1000U



MAZATROL SmoothC Specifications

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

Standard Machine Specifications

QT-COMPACT 100 series

		100M	100MY	100MS	100MSY
Universal		500U			
Capacity	Max. swing	Φ695 mm			
	Max. machining diameter	Φ340 mm			
	Max. machining length*1	554 mm		—	
	Distance between chuck top jaw faces*1	—		596 mm	
	Bar work capacity*2	Φ52 mm			
Travel	X-axis	215 mm			
	Y-axis	—	100 mm (±50 mm)	—	100 mm (±50 mm)
	Z-axis	605 mm			
Main spindle	Chuck size	6"			
	Spindle speed*1	6000 min <sup>-1</sup>			
	Number of spindle speed ranges	1-Stepless			
	Spindle nose	A2-5			
	Spindle bore	Φ61 mm			
Second spindle	Chuck size	—		5"	
	Spindle speed*1	—		6000 min <sup>-1</sup>	
	Number of spindle speed ranges	—		1-Stepless	
	Spindle nose	—		A2-5	
	Spindle bore	—		Φ53 mm	
Turret	Turret type	12 position drum turret (bolt-on)			
	Number of tools	12 tools			
	Tool shank height	25 mm			
	Boring bar shank diameter	Φ40 mm			
	Turret indexing time	0.23 sec / 1 step			
Rotary tool spindle	Spindle speed	4500 min <sup>-1</sup> (6000 min <sup>-1</sup> option)			
	Milling capacity	Drill : Φ20 mm			
		Endmill : Φ20 mm Tap : M20 × 2.5			
Feedrate	Rapid traverse rate : X-axis	30000 mm/min			
	Rapid traverse rate : Y-axis	—	10000 mm/min	—	10000 mm/min
	Rapid traverse rate : Z-axis	30000 mm/min			
	Rapid traverse rate : C-axis	555 min <sup>-1</sup>			
Tailstock	Tailstock stroke	565 mm		—	
	Tailstock center	MT-No.5 (Dead-center)		—	
Motors	Main spindle motor (cont. rating / 40 % ED)	11 kW / 15 kW (15 HP / 20 HP)			
	Second spindle motor (cont. rating / 40 % ED)	—		5.5 kW / 7.5 kW (7.5 HP / 10 HP)	
	Rotary tool spindle motor (cont. rating / 40 % ED)	3.7 kW / 5.5 kW (5 HP / 7.5 HP)			
Power requirement	Required power capacity (cont. rating)	20.24 kVA	20.71 kVA	20.60 kVA	21.07 kVA
Tank capacity	Coolant tank capacity	0.5 MPa (5 kgf/cm²)			
		150 L/min			
Machine size	Machine height	1725 mm			
	Floor space requirement*3	2600 mm × 1690 mm			
	Weight	4400 kg		4600 kg	4800 kg
CNC		MAZATROL SmoothC			

\*1 Depends on chuck specifications  
\*2 When using through-hole chuck BB206A515 + SR1453C  
\*3 Operation panel not included



Standard Machine Specifications

QT-COMPACT 200 series

		200M	200MY	200MS	200MSY
Universal		500U / 1000U		500U	
Capacity	Max. swing	Φ695 mm / Φ728 mm		Φ695 mm	
	Max. machining diameter	Φ340 mm			
	Max. machining length*1	535 mm / 1085 mm		—	
	Distance between chuck top jaw faces*1	—		575 mm	
	Bar work capacity*2	Φ65 mm			
Travel	X-axis	215 mm			
	Y-axis	—	100 mm (±50 mm)	—	100 mm (±50 mm)
	Z-axis	605 mm / 1155 mm		605 mm	
Main spindle	Chuck size	8"			
	Spindle speed*1	5000 min <sup>-1</sup>			
	Number of spindle speed ranges	1-Stepless			
	Spindle nose	A2-6			
	Spindle bore	Φ76 mm			
Second spindle	Chuck size	—		6"	
	Spindle speed*1	—		6000 min <sup>-1</sup>	
	Number of spindle speed ranges	—		1-Stepless	
	Spindle nose	—		A2-5	
	Spindle bore	—		Φ53 mm	
Turret	Turret type	12 position drum turret (Bolt-on)			
	Number of tools	12 tools			
	Tool shank height	25 mm			
	Boring bar shank diameter	Φ40 mm			
	Turret indexing time	0.23 sec / 1 step			
Rotary tool spindle	Spindle speed	4500 min <sup>-1</sup> (6000 min <sup>-1</sup> )			
	Milling capacity	Drill : Φ20 mm Endmill : Φ20 mm Tap : M20 × 2.5			
Feedrate	Rapid traverse rate : X-axis	30000 mm/min			
	Rapid traverse rate : Y-axis	—	10000 mm/min	—	10000 mm/min
	Rapid traverse rate : Z-axis	30000 mm/min			
	Rapid traverse rate : C-axis	555 min <sup>-1</sup>			
Tailstock	Tailstock stroke	565 mm / 900 mm		—	
	Tailstock center	MT-No.5 (Dead-center) / MT-No.4 (Built-in center)		—	
Motors	Main spindle motor (cont. rating / 40 % ED)	11 kW / 15 kW (15 HP / 20 HP)			
	Second spindle motor (cont. rating / 40 % ED)	—		5.5 kW / 7.5 kW (7.5 HP / 10 HP)	
	Rotary tool spindle motor (cont. rating / 40 % ED)	3.7 kW / 5.5 kW (5 HP / 7.5 HP)			
Power requirement	Required power capacity (cont. rating)	20.44 kVA	20.91 kVA	20.60 kVA	21.07 kVA
	Air supply	0.5 MPa (5 kgf/cm <sup>2</sup> ) 150 L/min			
Tank capacity	Coolant tank capacity	185 L / 280 L		185 L	
Machine size	Machine height	1725 mm / 1825 mm		1725 mm	
	Floor space requirement*3	2600 mm × 1690 mm / 3385 mm × 1760 mm		2600 mm × 1690 mm	
	Weight	4450 / 5150 kg	4650 / 5350 kg	4650 kg	4850 kg
CNC		MAZATROL SmoothC			

\*1 Depends on chuck specifications  
\*2 When using through-hole chuck BB208A615 + SR1566C  
\*3 Operation panel and cylinder cover not included

QT-COMPACT 300 series

		300M	300MY	300MS	300MSY
Universal		500 U / 1000 U		500 U	
Capacity	Max. swing	Φ695 mm / Φ728 mm		Φ695 mm	
	Max. machining diameter	Φ340 mm			
	Max. machining length*1	504.5 mm / 1054.5 mm		—	
	Distance between chuck top jaw faces*1	—		539.5 mm	
	Bar work capacity*2	Φ80 mm			
Travel	X-axis	215 mm			
	Y-axis	—	100 mm (±50 mm)	—	100 mm (±50 mm)
	Z-axis	605 mm / 1155 mm		605 mm	
Main spindle	Chuck size	10"			
	Spindle speed*1	4000 min <sup>-1</sup>			
	Number of spindle speed ranges	1-Stepless			
	Spindle nose	A2-8			
	Spindle bore	Φ91 mm			
Second spindle	Chuck size	—		6"	
	Spindle speed*1	—		6000 min <sup>-1</sup>	
	Number of spindle speed ranges	—		1-Stepless	
	Spindle nose	—		A2-5	
	Spindle bore	—		Φ53 mm	
Turret	Turret type	12 position drum turret (Bolt-on)			
	Number of tools	12 tools			
	Tool shank height	25 mm			
	Boring bar shank diameter	Φ40 mm			
	Turret indexing time	0.23 sec / 1 step			
Rotary tool spindle	Spindle speed	4500 min <sup>-1</sup> (6000 min <sup>-1</sup> option)			
	Milling capacity	Drill : Φ20 mm Endmill : Φ20 mm Tap : M20 × 2.5			
Feedrate	Rapid traverse rate : X-axis	30000 mm/min			
	Rapid traverse rate : Y-axis	—	10000 mm/min	—	10000 mm/min
	Rapid traverse rate : Z-axis	30000 mm/min			
	Rapid traverse rate : C-axis	555 min <sup>-1</sup>			
Tailstock	Tailstock stroke	565 mm / 900 mm		—	
	Tailstock center	MT-No.5 (Dead-center) / MT-No.4 (Built-in center)		—	
Motors	Main spindle motor (cont. rating / 40 % ED)	11 kW / 15 kW (15 HP / 20 HP)			
	Second spindle motor (cont. rating / 40 % ED)	—		5.5 kW / 7.5 kW (7.5 HP / 10 HP)	
	Rotary tool spindle motor (cont. rating / 40 % ED)	3.7 kW / 5.5 kW (5 HP / 7.5 HP)			
Power requirement	Required power capacity (cont. rating)	20.56 kVA	21.03 kVA	20.72 kVA	21.19 kVA
	Air supply	0.5 MPa (5 kgf/cm <sup>2</sup> ) 150 L/min			
Tank capacity	Coolant tank capacity	185 L / 280 L		185 L	
Machine size	Machine height	1725 mm / 1825 mm		1725 mm	
	Floor space requirement*3	2600 mm × 1690 mm / 3385 × 1760 mm		2600 mm × 1690 mm	
	Weight	4600 / 5300 kg	4800 / 5500 kg	4800 kg	5000 kg
CNC		MAZATROL SmoothC			

\*1 Depends on chuck specifications  
\*2 When using through-hole chuck BB210A815 + SR1781C  
\*3 Operation panel and cylinder cover not included

Optional Equipment

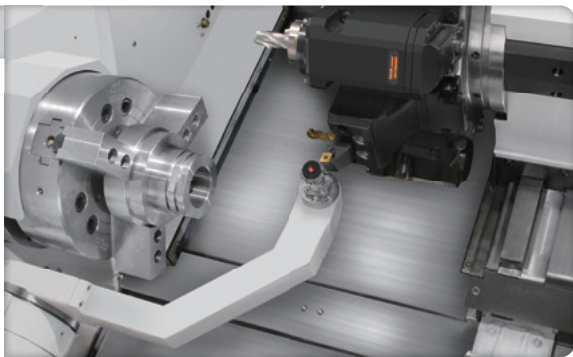
Automatic opening / closing front door

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.



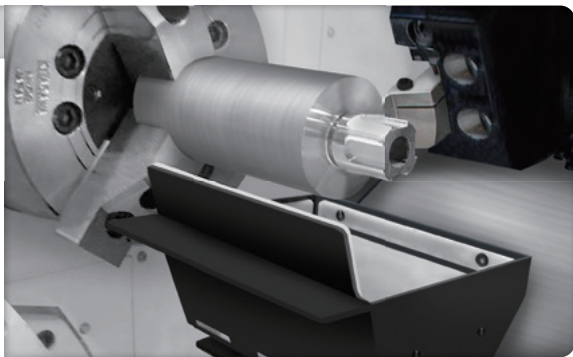
Tool eye

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.



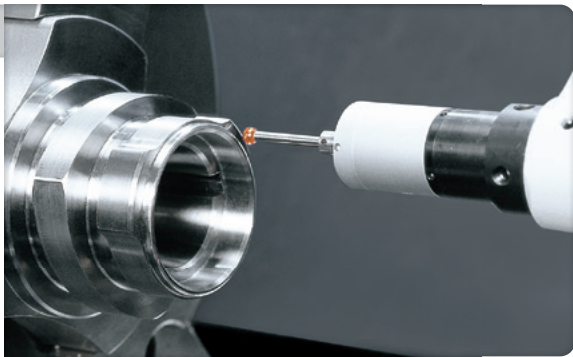
Auto parts catcher

Auto parts catcher automatically moves workpiece 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.



Standard and Optional Equipment

		● : Standard   ○ : Option   — : N/A											
		100M	100MY	100MS	100MSY	200M	200MY	200MS	200MSY	300M	300MY	300MS	300MSY
Machine	Main spindle 6" non through-hole chuck N-06	●	●	—	—	—	—	—	—	—	—	—	—
	Main spindle 6" through-hole chuck B-206	○	○	●	●	—	—	—	—	—	—	—	—
	Main spindle 6" through-hole chuck BB-206	○	○	○	○	—	—	—	—	—	—	—	—
	Main spindle 8" non through-hole chuck N-08	—	—	—	—	●	●	—	—	—	—	—	—
	Main spindle 8" through-hole chuck B-208	—	—	—	—	○	○	●	●	—	—	—	—
	Main spindle 8" through-hole chuck BB-208	—	—	—	—	○	○	○	○	—	—	—	—
	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	—	—	—	—	—	—	—	—	○	○	○	○
	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	—	—	●	●	—	—	—	—	—	—	—	—
	Second spindle 6" through-hole chuck B-206	—	—	—	—	—	—	●	●	—	—	●	●
	12 position turret (Bolt-on tool holders)	●	●	●	●	●	●	●	●	●	●	●	●
	4500 rpm rotary tool	●	●	●	●	●	●	●	●	●	●	●	●
	6000 rpm rotary tool	○	○	○	○	○	○	○	○	○	○	○	○
	Tailstock center (MT-No.5 dead center)	●	●	—	—	●	●	—	—	●	●	—	—
	Tailstock center (MT-No.4 built-in center)*	—	—	—	—	○	○	—	—	○	○	—	—
	Tailstock thrust automatic change	●	●	—	—	●	●	—	—	●	●	—	—
	Rotary center LC-5SW	○	○	—	—	○	○	—	—	○	○	—	—
	Rotary center LC-5A	○	○	—	—	○	○	—	—	○	○	—	—
	Work light	●	●	—	●	●	●	●	●	●	●	●	●
Factory automation	Absolute position detection	●	●	●	●	●	●	●	●	●	●	●	●
	Spindle orient	○	○	○	○	○	○	○	○	○	○	○	○
	Tool eye (automatic)	○	○	○	○	○	○	○	○	○	○	○	○
	Automatic chuck jaws open / close	○	○	●	●	○	○	●	●	○	○	●	●
	Chuck jaws air blast (main spindle / second spindle)	○	○	○	○	○	○	○	○	○	○	○	○
	Chuck jaws air blast (second spindle)	○	○	○	○	○	○	○	○	○	○	○	○
	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)	○	○	○	○	○	○	○	○	○	○	○	○
Safety equipment	Chuck jaw open / close confirmation	●	●	●	●	●	●	●	●	●	●	●	●
	Hydraulic pressure interlock	●	●	●	●	●	●	●	●	●	●	●	●
	2 pedal chuck foot switch	○	○	○	○	○	○	○	○	○	○	○	○
	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 (250 W)	●	●	●	●	●	●	●	●	●	●	●	●
	Powerful coolant (520 W)	○	○	○	○	○	○	○	○	○	○	○	○
	Powerful coolant (1.1 kW)	○	○	○	○	○	○	○	○	○	○	○	○
	Superflow coolant system	○	○	○	○	○	○	○	○	○	○	○	○
Others	Manuals	●	●	●	●	●	●	●	●	●	●	●	●
	Set of adjusting tools	○	○	○	○	○	○	○	○	○	○	○	○

\*Standard equipment on 200M / 200MY / 300M / 300MY 1000U.