



Mazak

QUICK TURN 400/450 S E R I E S

400

450M

400M

450MY

400MY

450MY LBB

450

450MY LVM

Advanced features of the MAZATROL Smooth CNC

Touch screen operation similar to your smartphone/tablet

PC with Windows® 8 embedded OS

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

Easy conversational programming of multiple-surface machining

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

MTConnect® ready for convenient networking

Easily configure machine parameters for different workpiece materials and application requirements

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



MAZATROL
SMOOTH
MAZATROL
SMOOTHG

Standard CNC system varies by market.

Large CNC turning centers with unsurpassed versatility and value



QUICK TURN 450MY with MAZATROL SmoothG CNC shown with optional equipment



Innovative support for operators

ergonomics

Ease of operation



Designed with environmental considerations

QUICK TURN 400/450 SERIES

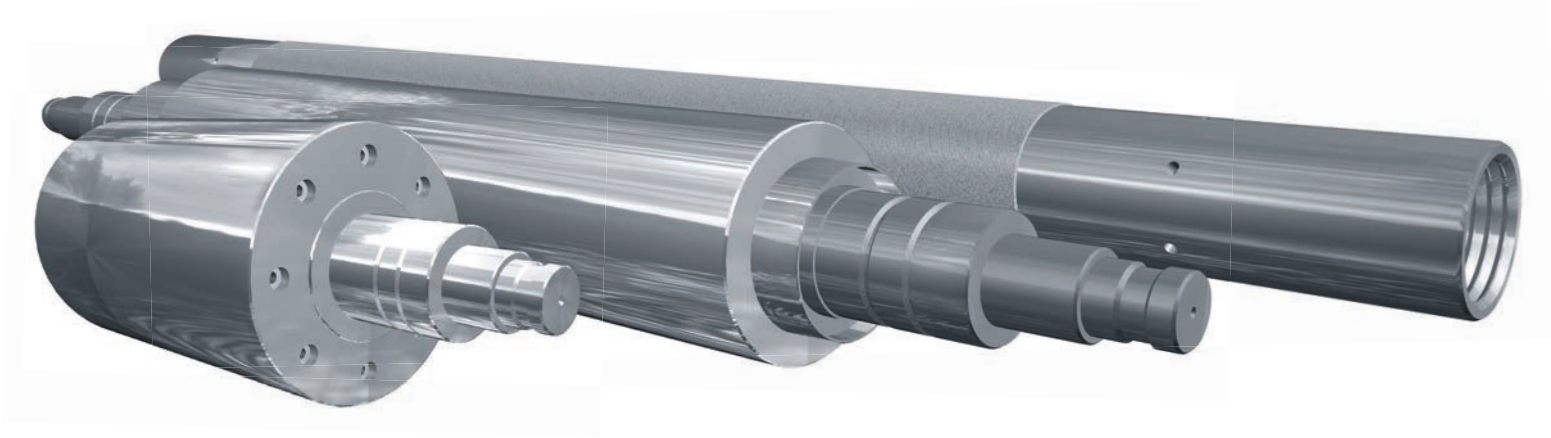
- High-rigidity construction and high-performance integral spindle/motor
- Universal: 1000U/2000U/3000U
- Chuck size: 12" x 15" (400, 400M, 450MY), 18" x 21" (450, 450M, 450MY)
- Turret with integral spindle/motor for high-accuracy milling (400M, 400MY, 450M, 450MY)

Series Range

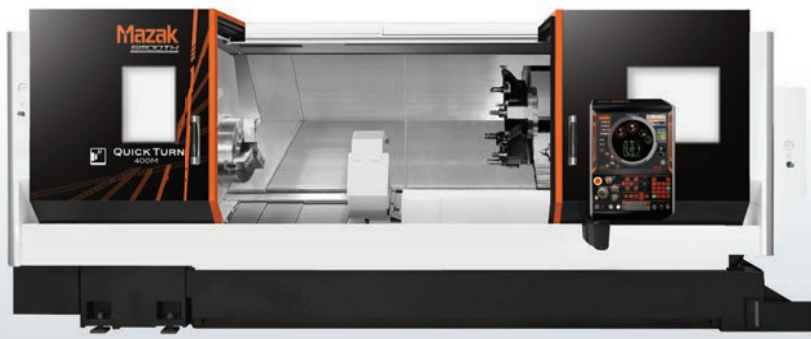
The QUICK TURN 400/450 Series includes 1000U, 2000U and 3000U models.
The 400M/MY and 450M/MY models can perform milling and turning in the same setup for DONE IN ONE® part processing.

●: Standard ○: Option —: N/A

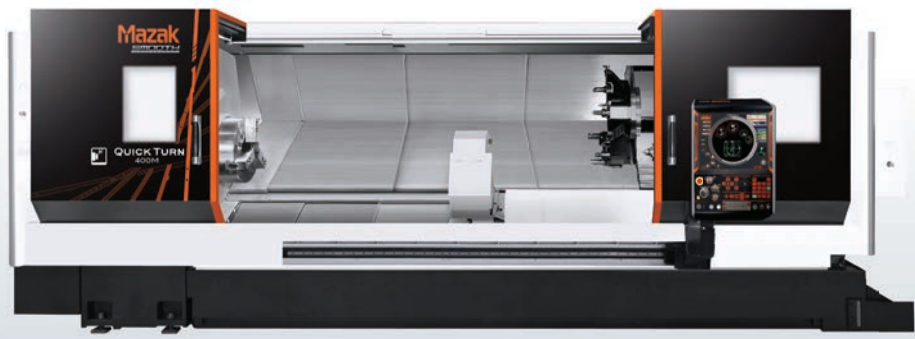
| | | Max swing | Turret | | Milling | Tailstock | Universal |
|-------|-------|-----------|---------|-----|---------|-----------|-------------------|
| | | | Bolt-on | VDI | | | |
| 400 | 450 | 33.26" | ● | — | — | ● | 1000U/2000U/3000U |
| 400M | 450M | 33.26" | ○ | ● | ● | ● | 1000U/2000U/3000U |
| 400MY | 450MY | 33.07" | ○ | ● | ● | ● | 1000U/2000U/3000U |



QUICK TURN 400M (1000U) with MAZATROL SmoothG

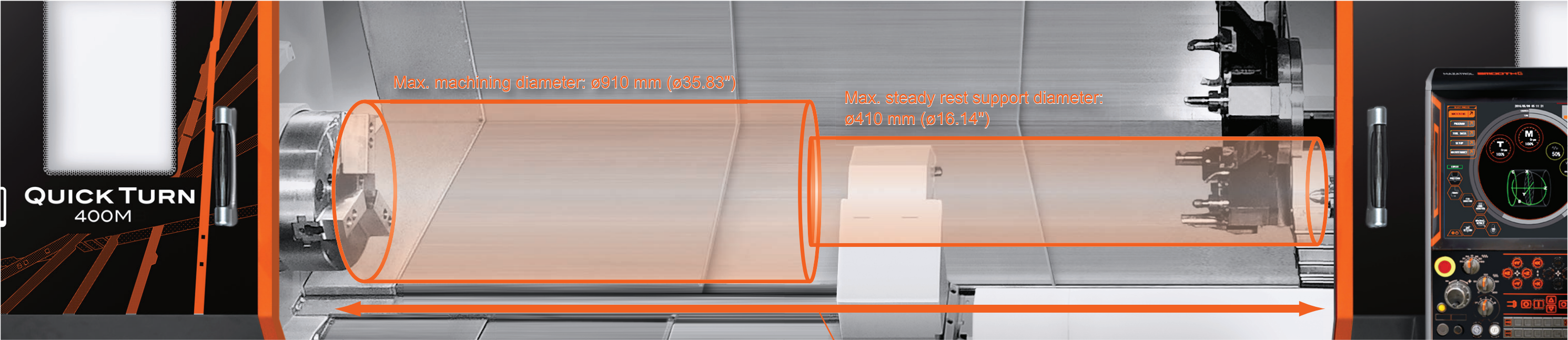


QUICK TURN 400M (2000U) with MAZATROL SmoothG



QUICK TURN 400M (3000U) with MAZATROL SmoothG

Large workpiece capacity



Max. machining diameter: $\varnothing 910$ mm ($\varnothing 35.83$ ")

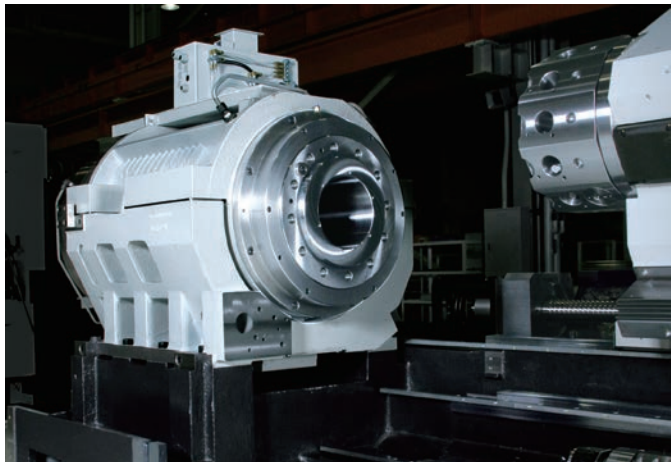
Max. steady rest support diameter:
 $\varnothing 410$ mm ($\varnothing 16.14$ ")

Max. machining length: 1002mm*/2052mm*/3102mm* (1000U/2000U/3000U)

*QUICK TURN 400M with BB-212A115C through-hole chuck & SS2110C15Y cylinder + (Kitagawa)

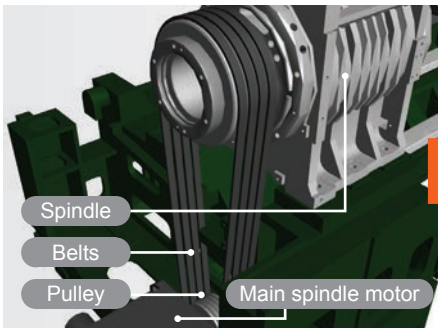
Higher Productivity

Integral spindle/motor with large spindle bore



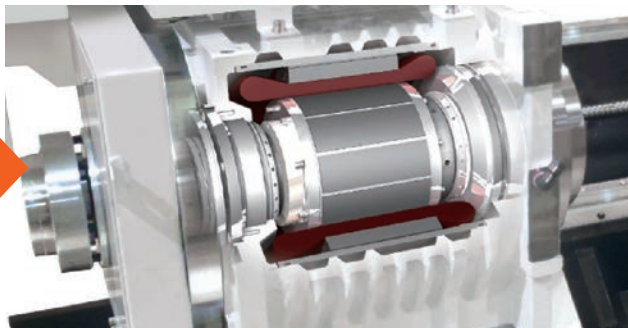
The QUICK TURN 400/450 series utilize high-output integral spindle/motors plus high-rigidity construction to meet various machining requirements. Thanks to their design, vibration is minimized during high-speed operation to ensure exceptional surface finishes and maximum tool life. Since no transmission 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 400M/MY, 450M/MY.

Conventional belt drive

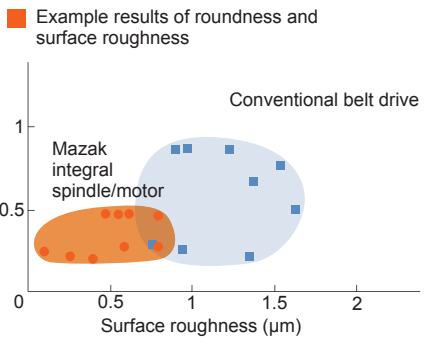


Vibration increases with faster speed

QUICK TURN integral spindle/motor



Minimum vibration produced by integral spindle/motor



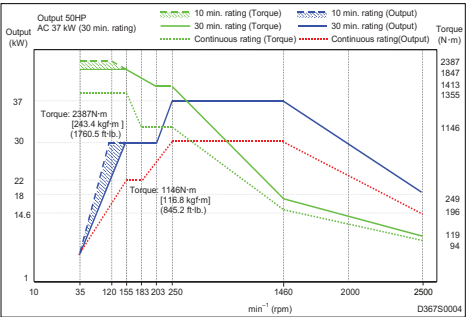
Different spindle bores are available for a wide range of machining applications

QUICK TURN 400, 400M, 400MY

Spindle Bore 5.2"

| | STANDARD |
|--------------------------------------|---------------|
| Speed/RPM | 2500 |
| Output (40% ED/Cont. rating) HP [kW] | 50/30 [37/30] |
| Chuck size | 12" |
| Spindle bore | 5.2" |
| Bar work ¹ | 4" |

¹ Depends on chuck specifications.

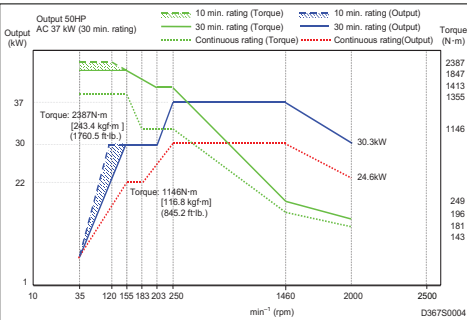


QUICK TURN 450, 450M, 450MY

Spindle bore 7.28"

| | STANDARD |
|--------------------------------------|---------------|
| Speed/RPM | 2000 |
| Output (40% ED/Cont. rating) HP [kW] | 50/30 [37/30] |
| Chuck size | Not mounted |
| Spindle bore | 7.28" |
| Bar work capacity ¹ | 7.2" |

¹ Depends on chuck specifications.

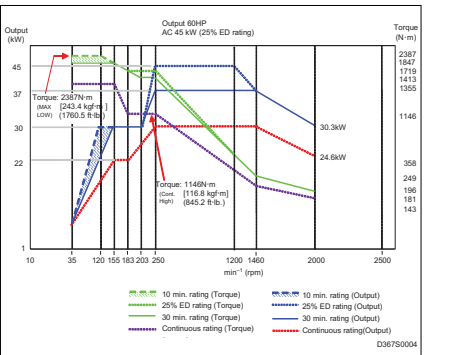


QUICK TURN 450, 450M, 450MY

Spindle bore 7.28" (60HP)

| | OPTION |
|--------------------------------------|---------------|
| Speed/RPM | 2000 |
| Output (25% ED/Cont. rating) HP [kW] | 60/50 [45/37] |
| Chuck size | Not mounted |
| Spindle bore | 7.28" |
| Bar work capacity ¹ | 7.2" |

¹ Depends on chuck specifications.

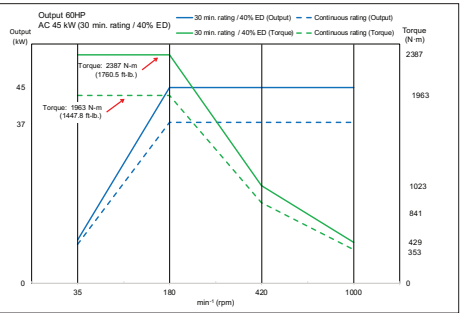


QUICK TURN 450, 450M, 450MY

Spindle bore 10.8" (60HP)

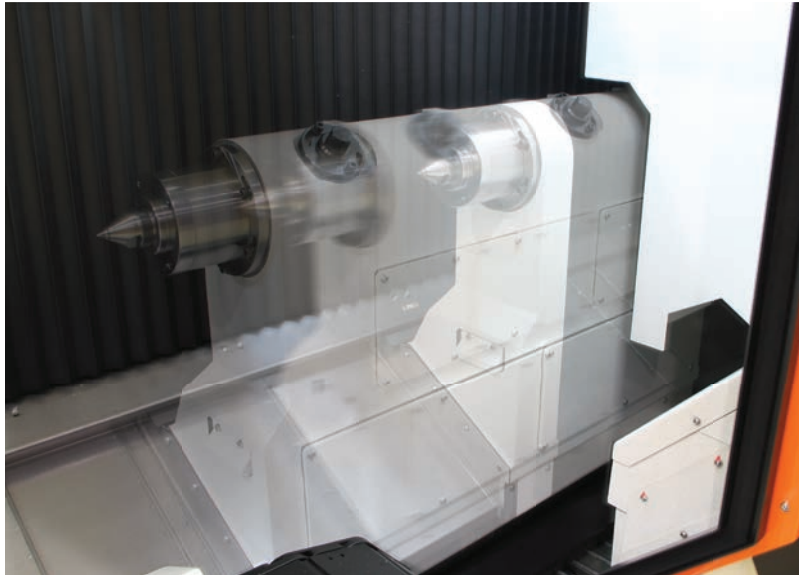
| | OPTION |
|--------------------------------------|---------------|
| Speed/RPM | 1000 |
| Output (40% ED/Cont. rating) HP [kW] | 60/50 [45/37] |
| Chuck size | Not mounted |
| Spindle bore | 10.8" |
| Bar work capacity ¹ | 7.2" |

¹ Depends on chuck specifications.



Higher Productivity

NC tailstock



The tailstock's travel and thrust are 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 forces ensure high-accuracy turning for small-diameter shafts and thin cross-section parts, all while providing easier operation than drag and drop or hydraulic/pneumatic thrust systems.

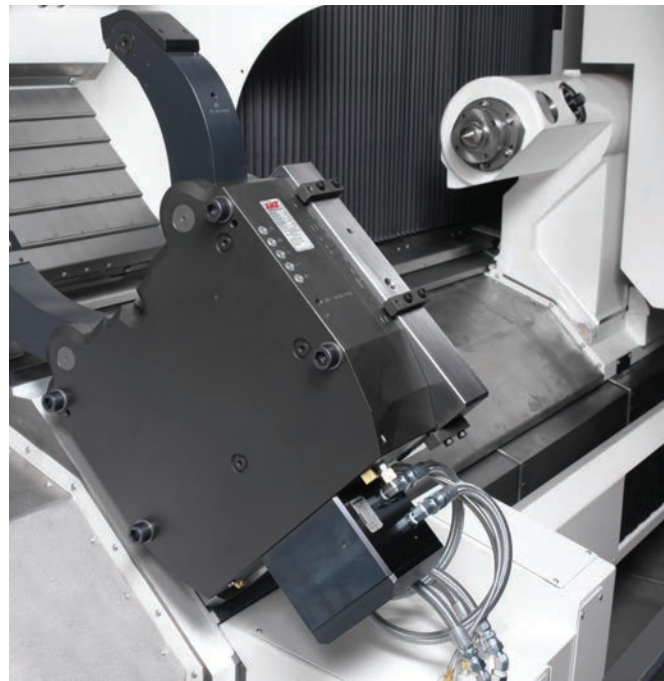
● : Standard

| Center distance | MT No.5 built-in center |
|-----------------|-------------------------|
| 1000U | ● |
| 2000U | ● |
| 3000U | ● |

Steady rest

1000U/2000U/3000U

OPTION



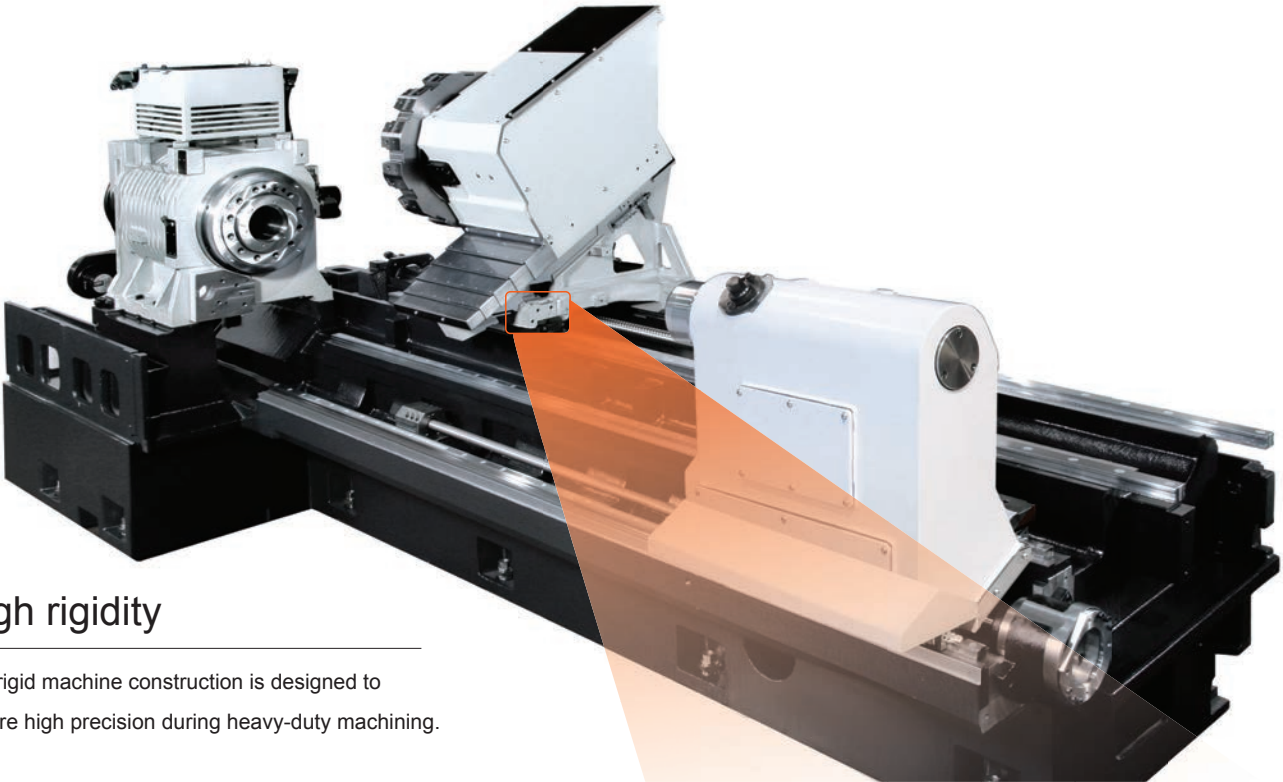
A steady rest provides safe machining for long workpieces. It can be moved automatically by connecting it to the turret unit with a coupling pin.

○ : Optional — : N/A

| Steady rest model | 400/450 2-axis | 400/450 M | 400/450 MY |
|---------------------------------|----------------|-----------|------------|
| SMW SLUX-3.2 (ø1.96" to ø7.87") | ○ | ○ | ○ |
| SMW K4 (ø2.04" to ø11.02") | ○ | ○ | ○ |
| SMW K4.1 (ø3.54" to ø12.99") | ○ | ○ | — |
| SMW K5 (ø3.15" to ø15.35") | — | — | ○ |

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 400/450 series for high speed, high rigidity and a long service life.



Mazak standard positioning accuracy: two times better than the ISO standard

| | | | ISO | Mazak standard |
|------------------------------------|--------|---------|--------|----------------|
| Bidirectional positioning accuracy | X axis | — | 22 μm | 11 μm |
| | Z axis | 1000U | 32 μm | 16 μm |
| | | 2000U | 42 μm | 21 μm |
| | | 3000U | 42 μm | 21 μm |
| | C axis | Spindle | 63 sec | 20 sec |

Ergonomics

Ergonomic design for convenient operation

Wide door opening

Thanks to its large door opening, heavy workpieces can easily be loaded/unloaded by using an overhead crane.

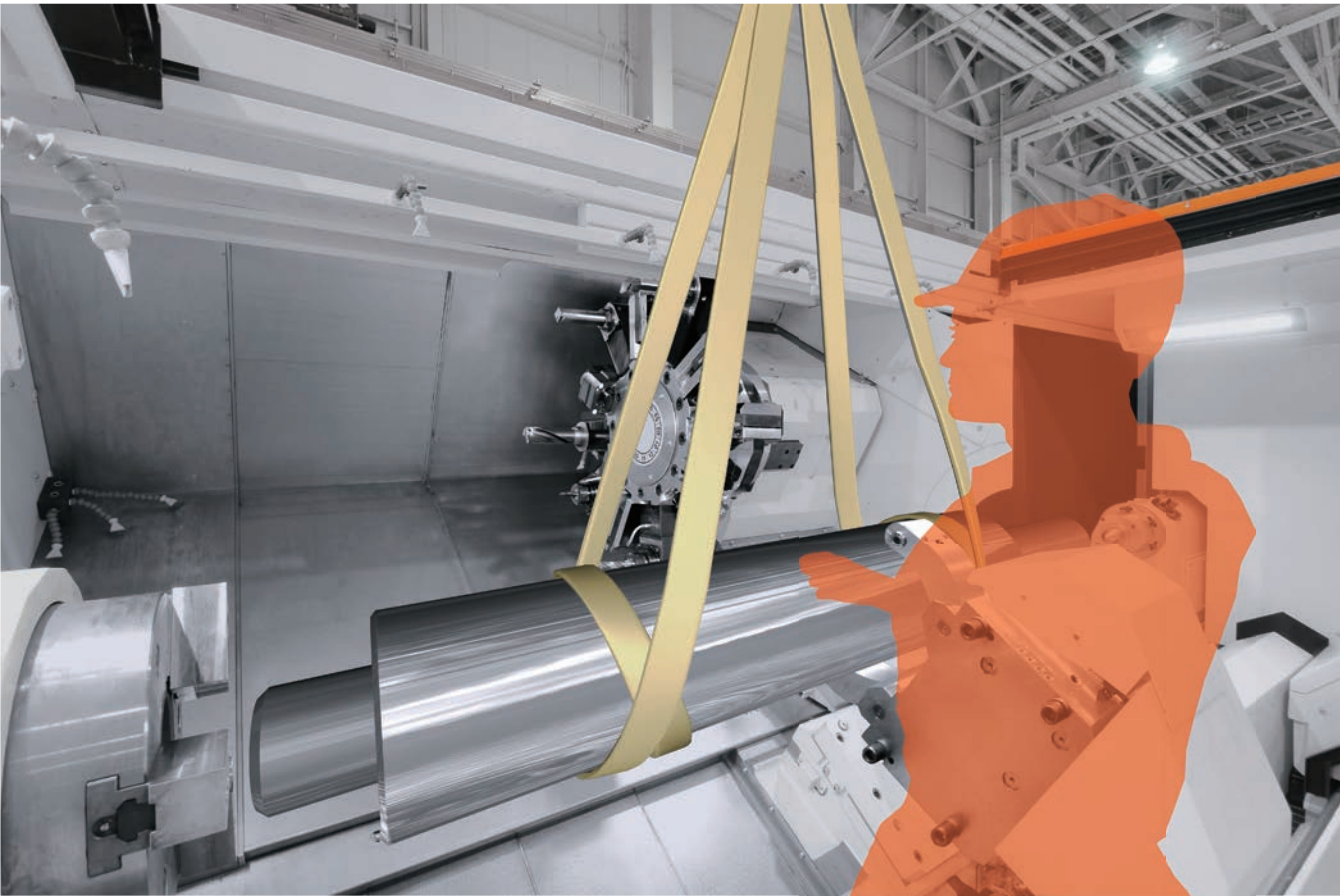
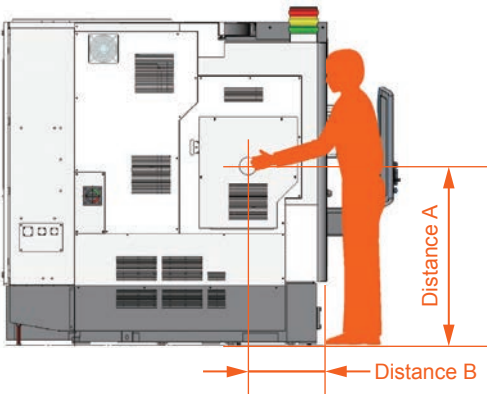
| Universal | 1000U | 2000U | 3000U |
|--------------|-------|-------|-------|
| Door opening | 44.8" | 82.3" | 130" |



Convenient setup

The short distance from the front cover to the spindle centerline enables convenient setup and workpiece loading/unloading.

| | 400/450 2-axis & M | 400/450 MY |
|-----------------------|--------------------|-------------|
| Distance A inch" (mm) | 44.9" (1140) | |
| Distance B inch" (mm) | 25.6" (650) | 27.9" (710) |



Color-coded cables

Electric cables are color-coded for convenient maintenance.



Ease of maintenance

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



Coolant tank

The coolant tank and optional chip conveyor can be removed from the front of the machine for ease of maintenance.

Work lights

LED lights are located inside the machining area for ease of operation.

MAZATROL CNC System

MAZATROL *SMOOTHC*



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

Home screen

The home screen displays the 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

MAZATROL *SMOOTHG*

From setup to machining, designed for unsurpassed ease of operation



19" touch panel
Touch panel operation

USB port
Interface for peripheral equipment
USB 1.0+2.0

SD card slot
Transfer programs and tool data

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

Dials
For selection of frequently used axes and feedrate changes

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

Process home screens

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

Programming



Tool data



Setup



Machining



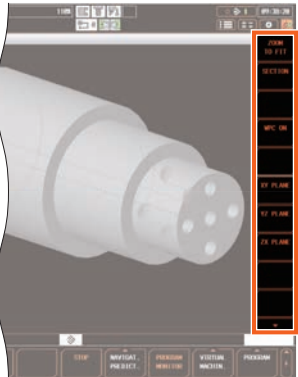
Maintenance



Pop-up windows

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

Side menu



List menu



Screen keyboard



■ Ease of Programming

Innovative programming screens link tool path, workpiece shape and EIA code to reduce programming time.

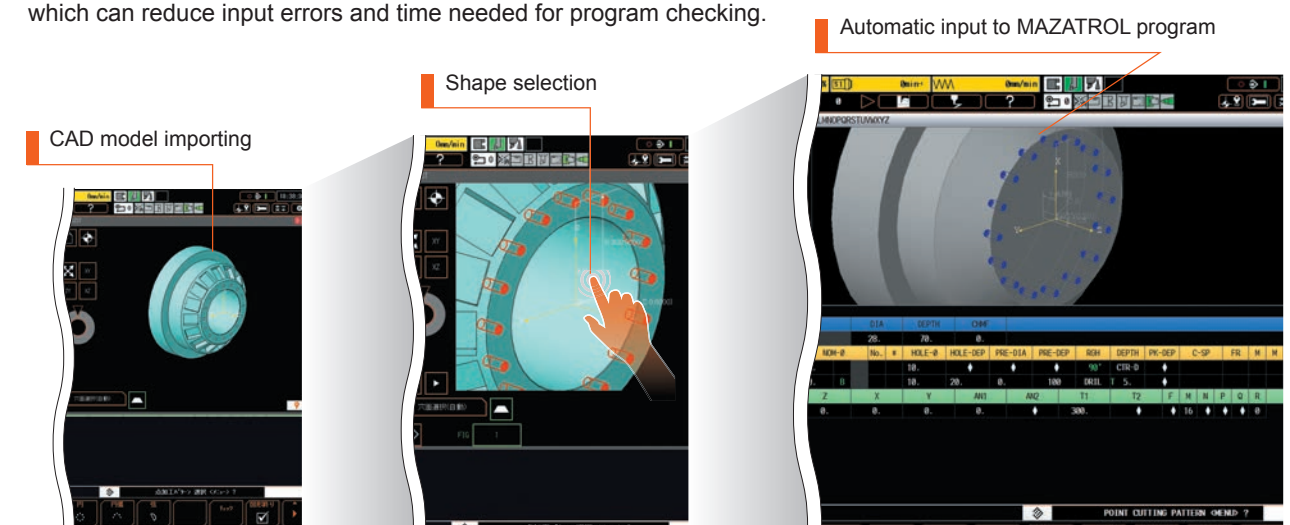
QUICK MAZATROL

The MAZATROL program, unit list and 3D workpiece shape are linked to each other. After defining a machining unit in a MAZATROL program, the 3D shape is displayed immediately so an operator may check for any programming error quickly and easily.



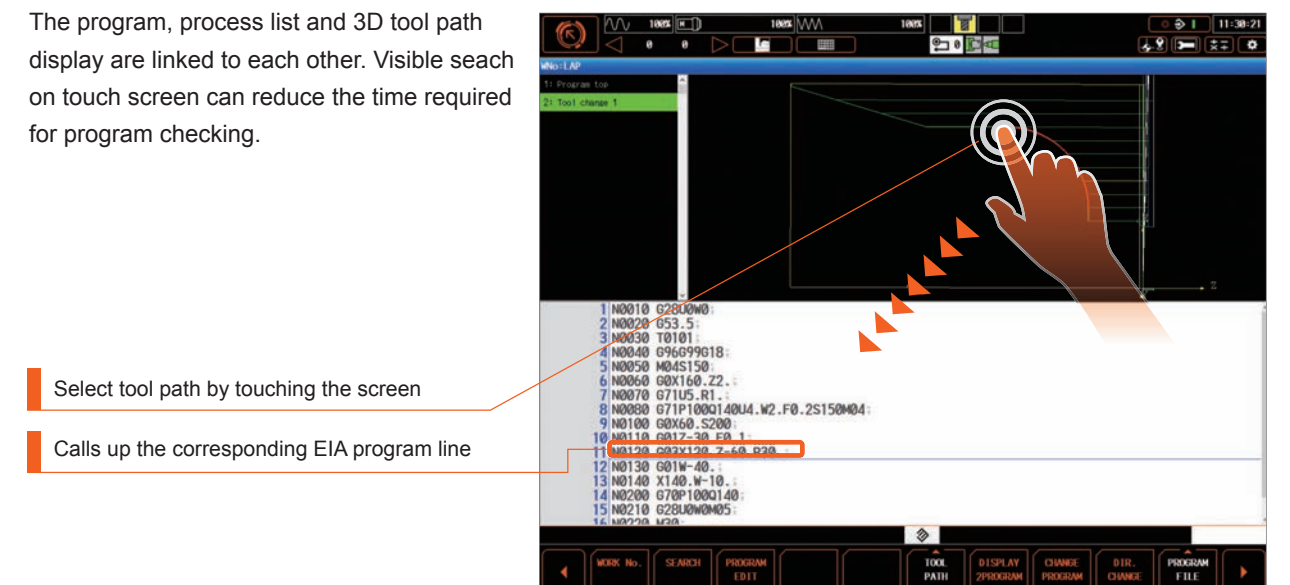
3D ASSIST

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



QUICK EIA

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



MAZATROL SmoothC Specifications

| | | |
|------------------------------------|---|--|
| | | |
| | | |
| | MAZATROL | EIA |
| Number of controlled axes | 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), 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, GO speed variable control, Feedrate limitation, Variable acceleration control, GO 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, GO speed variable control, Feedrate limitation, Time constant changing for G1, Variable acceleration control, GO slope constant* |
| Program registration | Max. number of programs: 256 (Standard)/960 (Max.), Program storage: 2MB, Program storage expansion: 8MB*, Prgoram storage expansion: 32MB* | |
| Control display | Display: 10.4" panel, Resolution: SXGA | |
| 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 | Tool offset pairs: 4000, T code output for tool number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces) | Tool offset pairs: 4000, T code output for tool number, Tool code output for group number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces) |
| Miscellaneous functions | M code output, Simultaneous output of multiple M codes | |
| Tool offset functions | Tool position offset, Tool length offset, Tool diameter/tool nose R offset, Tool nose shape offset, Tool wear offset, Fixed amount offset, Simple wear offset | 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 set) | |
| Machine functions | — | Polygon cutting*, Hobbing* |
| Machine compensation | Backlash compensation, Pitch error compensation | |
| Protection functions | Emergency stop, Interlock, Pre-move stroke check, Barrier | |
| Automatic operation mode | Memory operation | Memory operation, Tape operation, MDI operation, Ethernet operation* |
| Automatic operation mode | Optional stop, Dry run, Manual handle control, MDI interruption, TPS, Restart, Single process, Machine lock | Optional block skip, Optional stop, Dry run, Manual handle control, MDI interruption, TPS, Restart, Restart 2, Collation stop, Machine lock |
| Manual measuring functions | Tool-setting data teach, Tool length teach, Touch sensor coordinates measurements, 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, Tool breakage detection | |
| Interface | PROFIBUS-DP*, Ethernet I/P*, CC-Link* | |
| Card interface | SD card interface, USB | |
| Ethernet | 10M/100M/1Gbps | |

*: Option

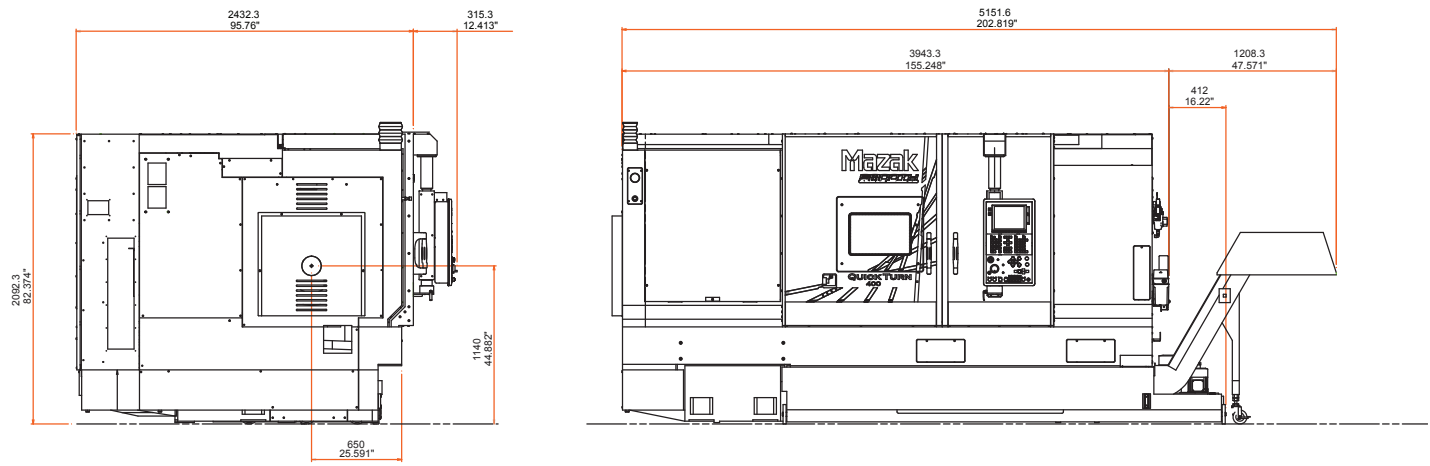
MAZATROL SmoothG Specifications

| | | |
|------------------------------------|---|--|
| | | |
| | | |
| | MAZATROL | EIA |
| Number of controlled axes | 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), 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, GO speed variable control, Feedrate limitation, Variable acceleration control, GO 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, GO speed variable control, Feedrate limitation, Time constant changing for G1, Variable acceleration control, GO slope constant* |
| Program registration | Max. number of programs: 256 (Standard)/960 (Max.), Program storage: 2MB, Program storage expansion: 8MB*, Prgoram storage expansion: 32MB* | |
| Control display | Display: 19" touch panel, Resolution: SXGA | |
| Spindle functions | S code output, Spindle speed 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 | Tool offset pairs: 4000, T code output for tool number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces) | Tool offset pairs: 4000, T code output for tool number, Tool code output for group number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces) |
| Miscellaneous functions | M code output, Simultaneous output of multiple M codes | |
| Tool offset functions | Tool position offset, Tool length offset, Tool diameter/tool nose R offset, Tool nose shape offset, Tool wear offset, Fixed amount offset, Simple wear offset | 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 set) | |
| Machine functions | — | Polygon cutting*, Hobbing* |
| Machine compensation | Backlash compensation, Pitch error compensation | |
| Protection functions | Emergency stop, Interlock, Pre-move stroke check, Barrier, SAFETY SHIELD (manual mode), SAFETY SHIELD (automatic mode)*, VOICE ADVISER | |
| Automatic operation mode | Memory operation | Memory operation, Tape operation, MDI operation, Ethernet operation* |
| Automatic operation mode | 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 measurements, 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, Tool breakage detection | |
| Interface | PROFIBUS-DP*, Ethernet I/P*, CC-Link* | |
| Card interface | SD card interface, USB | |
| Ethernet | 10M/100M/1Gbps | |

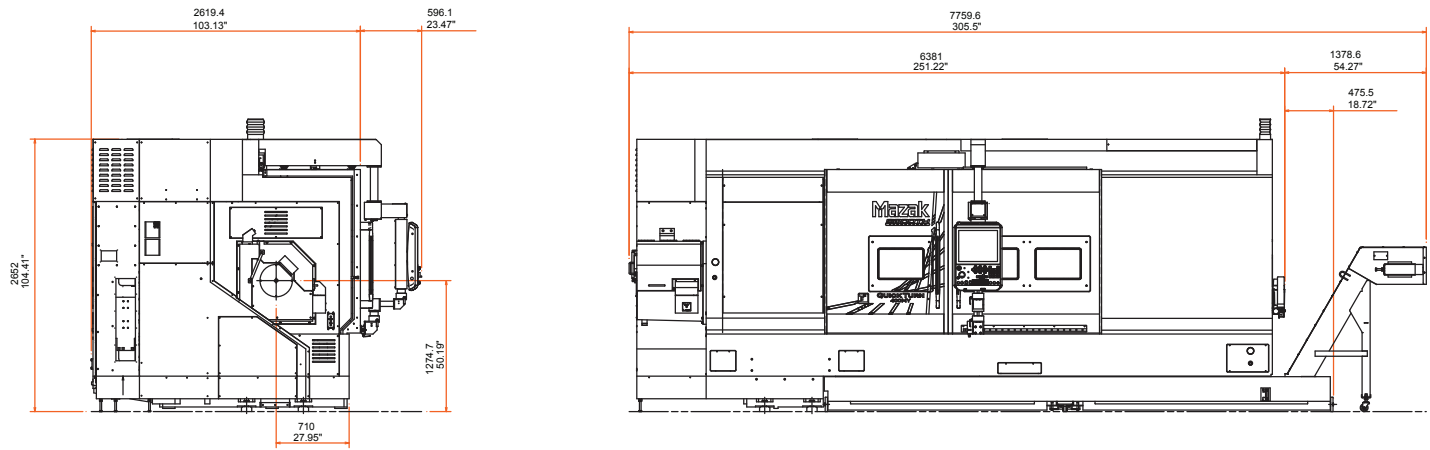
*: Option

Machine Dimensions

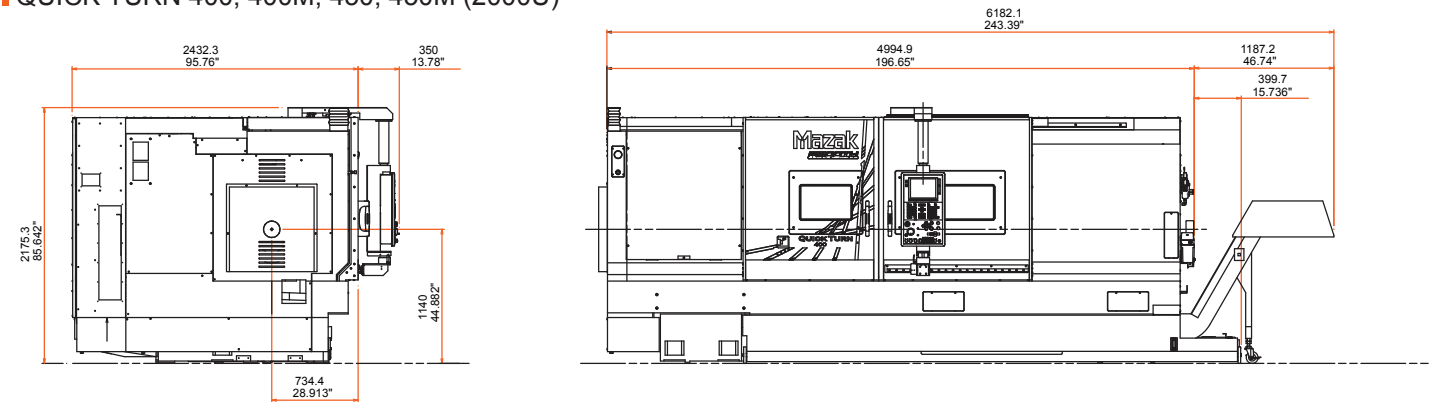
QUICK TURN 400, 400M, 450, 450M (1000U)



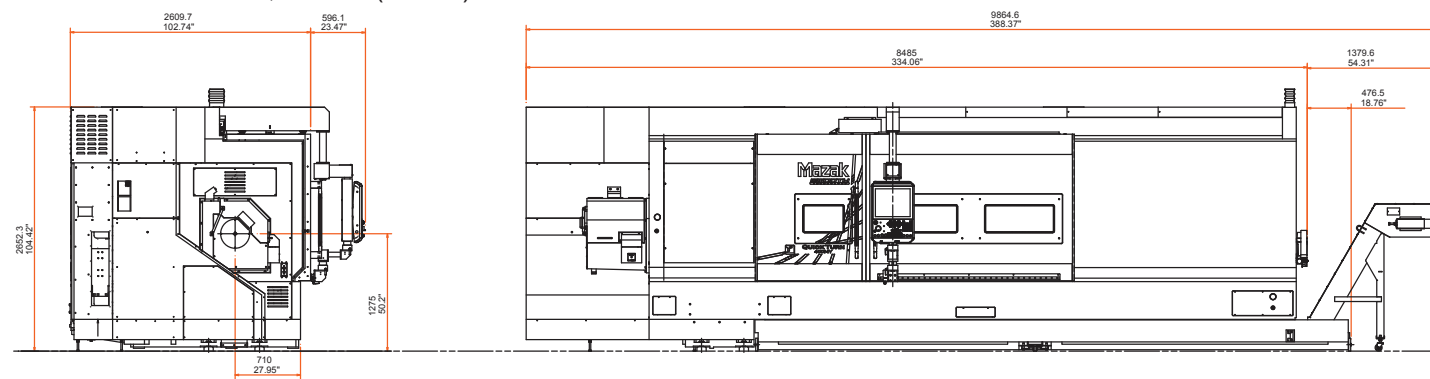
QUICK TURN 400MY, 450MY (2000U)



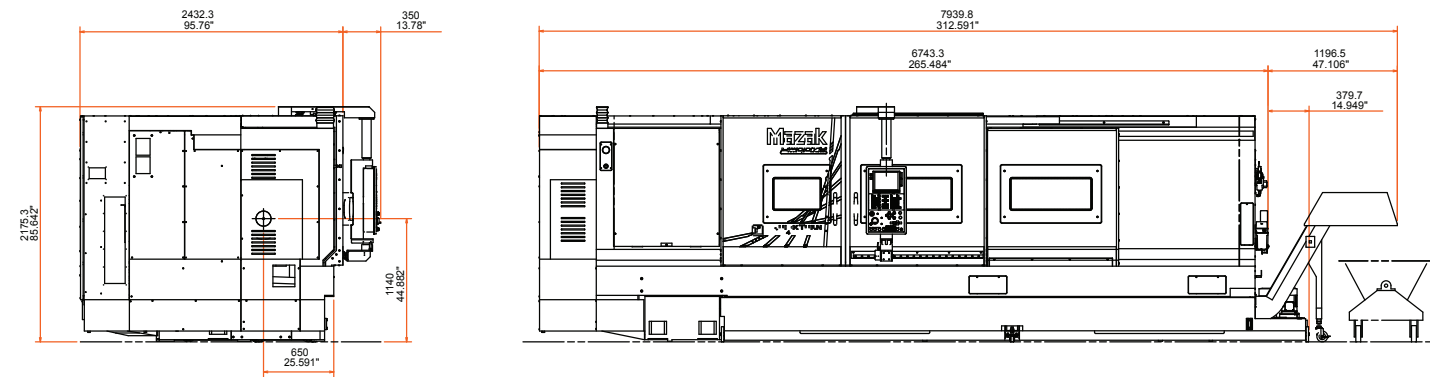
QUICK TURN 400, 400M, 450, 450M (2000U)



QUICK TURN 400MY, 450MY (3000U)



QUICK TURN 400, 400M, 450, 450M (3000U)



Standard Machine Specifications

| | | 400 | 400M | 450 | 450M |
|---------------------|---|---|--|--|--|
| Universal | | 1000U/2000U/3000U | | | |
| Capacity | Max. swing | ø845 mm | | | |
| | Swing over carriage | ø530 mm | | | |
| | Max. machining diameter | ø580 mm | | | |
| | Max. machining length ^{*1} | 1024 mm/2072 mm/3122 mm | 994 mm/2078 mm/3094 mm | 979 mm/2029 mm/3079 mm | 951 mm/2035 mm/3051 mm |
| | Bar work capacity ^{*1} | ø103 mm | | ø165 mm (ø184 mm with optional ø185 mm spindle bore) | |
| Travel | X axis | 345 mm | 350 mm | 320 mm | 350 mm |
| | Z axis | 1070 mm/2120 mm/3170 mm | | | |
| Spindle | Chuck size | 12" | | 18", 21" (option) | |
| | Spindle speed ^{*1} | 2500 min ⁻¹ (rpm) | | 2000 min ⁻¹ (rpm) | |
| | Number of spindle speed ranges | 1-Stepless | | | |
| | Spindle nose | A2-11 | | A2-15 | |
| | Spindle bore | □132 mm | | □185 mm (option: □275 mm) | |
| Turret | Turret type | 12-position drum turret (bolt-on) | 12-position drum turret (bolt-on/option. VDI) | 12-position drum turret (bolt-on) | 12-position drum turret (bolt-on/option. VDI) |
| | Number of tools | 12 | | | |
| | Turning tool shank height | 32 mm | | | |
| | Boring bar shank diameter | □50 mm | | | |
| | Turret indexing time | 0.26 sec/1 step | Bolt-on: 0.26 sec/1 step VDI: 0.26 sec/1 step | 0.26 sec/1 step | Bolt-on: 0.26 sec/1 step VDI: 0.26 sec/1 step |
| Rotary tool spindle | Spindle speed | — | Bolt-on: 5000 min ⁻¹ VDI: 5000 min ⁻¹ | — | Bolt-on: 5000 min ⁻¹ VDI: 5000 min ⁻¹ |
| | Milling capacity | — | Drill: □25 mm Endmill: □25mm Tap: M24 x 3 | — | Drill: □25 mm Endmill: □25mm Tap: M24 x 3 |
| Feedrate | Rapid traverse rate: X axis | 30000 mm/min | | | |
| | Rapid traverse rate: Z axis | 30000 mm/min (1000U, 2000U)/24000 mm/min (3000U) | | | |
| | Rapid traverse rate: C axis | — | 400 min ⁻¹ (rpm) | — | 400 min ⁻¹ (rpm) |
| Tailstock | Tailstock stroke | 1025 mm/2075 mm/ 2950 mm | | | |
| | Tailstock center | MT No. 5 (built-in) | | | |
| Motors | Spindle motor (40% ED) | 37 kW | | | |
| | Spindle motor (cont. rating) | 30 kW | | | |
| | Rotary tool spindle motor (40% ED/cont. rating) | — | 7.5 kW/5.5 kW | — | 7.5 kW/5.5 kW |
| | Motor for coolant | 0.52 kW + 1.21 kW | | | |
| Power requirement | Electrical power requirements (40% ED/cont. rating) | 64.1 kVA (1000U, 2000U) 66.1 kVA (3000U)/54.2 kVA (1000U, 2000U) 56.1 kVA (3000U) | | | |
| | Air supply | 0.5 MPa, 50 L/min | 0.5 MPa, 50 L/min | 0.5 MPa, 50 L/min | 0.5 MPa, 50 L/min |
| Coolant | Tank capacity | 320 L/450 L/550L | | | |
| Machine size | Machine Height | 2040 mm (1000U, 2000U)/2090 mm (3000U) | | | |
| | Floor space requirement ^{*2} | 4352 mm x 2313 mm (1000U)/5390 mm x 2313 mm (2000U)/7020 mm x 2353 mm (3000U) | | | |
| | Weight ^{*3} | 9900 kg/11700 kg/ 15000 kg | 10350 kg/12150 kg/15800 kg | 9900 kg/11700 kg/15000 kg | 10350 kg/12150 kg/15800 kg |

^{*1} Depends on chuck specifications
^{*2} Operation control panel and chip conveyor not included.
^{*3} Without chip conveyor. Coolant not included.

Standard and Optional Equipment

| | | ●: Standard ○: Optional —: N/A | | | | | |
|-----------------------|---|--------------------------------------|---------|----------|--------|---------|----------|
| | | QT-400 | QT-400M | QT-400MY | QT-450 | QT-450M | QT-400MY |
| Machine | 12" through hole chuck | ● | ● | ● | — | — | — |
| | 15" through holechuck | ○ | ○ | ○ | — | — | — |
| | 18" through hole chuck | — | — | — | ○ | ○ | ○ |
| | 21" through hole Chuck | — | — | — | ○ | ○ | ○ |
| | Rear chuck preparation | ○ | ○ | ○ | ○ | ○ | ○ |
| | Chuck jaws open/close confirmation | ● | ● | ● | ● | ● | ● |
| | Main spindle motor AC 50HP (37kW) 1,760 lb-ft (2,387 N•m) | ● | ● | ● | ● | ● | ● |
| | Main spindle motor AC 60HP (45kW) 1,760 lb-ft (2,387 N•m) | ○ | ○ | ○ | ○ | ○ | ○ |
| | 12-position static tooling drum turret | ● | — | — | ● | — | — |
| | 12-position VDI live tooling turret 4,000 RPM (CAT #40) | — | ● | ● | — | ● | ● |
| | 12-position VDI live tooling turret 6,000 RPM (ER #40) | — | ○ | ○ | — | ○ | ○ |
| | 12-position bolt-on live tooling turret 4,000 RPM (CAT #40) | — | ○ | ○ | — | ○ | ○ |
| | 12-position bolt-on live tooling turret 6,000 RPM (ER #40) | — | ○ | ○ | — | ○ | ○ |
| | Automatic steady rest SLU-X 3.1 (ø.78"~ø6.50") | ○ | ○ | ○ | ○ | ○ | ○ |
| | Automatic steady rest SLU-X 3.2 (ø1.96"~ø7.87") | ○ | ○ | ○ | ○ | ○ | ○ |
| | Automatic steady rest K4 (ø2.36"~ø11.02") | ○ | ○ | ○ | ○ | ○ | ○ |
| | Automatic steady rest K4.1 (ø3.54"~ø13.00") | ○ | ○ | — | — | ○ | — |
| | Automatic steady rest K5 (ø3.15"~ø15.35") | — | — | ○ | — | — | ○ |
| | Manual steady rest (ø1.2"~ø8.7") | ○ | ○ | ○ | ○ | ○ | ○ |
| | Tailstock center MT No. 5 | ● | ● | ● | ● | ● | ● |
| Standard automation | Intelligent Thermal Shield | ● | ● | ● | ● | ● | ● |
| | Scale feedback | ○ | ○ | ○ | ○ | ○ | ○ |
| | Tool eye | ● | ● | ● | ● | ● | ● |
| | Automatic front door | ○ | ○ | ○ | ○ | ○ | ○ |
| | Status light (1 color) | ○ | ○ | ○ | ○ | ○ | ○ |
| | Status light (3 colors) | ○ | ○ | ○ | ○ | ○ | ○ |
| | Machining end buzzer | ○ | ○ | ○ | ○ | ○ | ○ |
| | Automatic power off | ○ | ○ | ○ | ○ | ○ | ○ |
| | Automatic power ON/OFF + warm-up | ○ | ○ | ○ | ○ | ○ | ○ |
| | Automatic chuck jaws open/close | ○ | ○ | ○ | ○ | ○ | ○ |
| | Chuck jaws air blast | ○ | ○ | ○ | ○ | ○ | ○ |
| | Spindle orient (one position) | ○ | ○ | ○ | ○ | ○ | ○ |
| Coolant/chip disposal | Spindle orient (multi position) | ○ | ○ | ○ | ○ | ○ | ○ |
| | Robot interface | ○ | ○ | ○ | ○ | ○ | ○ |
| | Workpiece probe (wireless) | ○ | ○ | ○ | ○ | ○ | ○ |
| | SMARTBOX | ○ | ○ | ○ | ○ | ○ | ○ |
| | Side discharge chip conveyor (HINGE) | ○ | ○ | ○ | ○ | ○ | ○ |
| | Side discharge chip conveyor (HINGE) (wear resistant) | ○ | ○ | ○ | ○ | ○ | ○ |
| | Chip bucket (swing type) | ○ | ○ | ○ | ○ | ○ | ○ |
| | Chip bucket (fixed type) | ○ | ○ | ○ | ○ | ○ | ○ |
| | Handheld coolant nozzle | ○ | ○ | ○ | ○ | ○ | ○ |
| | Turret air blast | ○ | ○ | ○ | ○ | ○ | ○ |
| | Mist collector | ○ | ○ | ○ | ○ | ○ | ○ |
| | 59 PSI coolant | ● | ○ | ○ | ○ | ○ | ○ |
| | 118 PSI coolant | ○ | ● | ● | ● | ● | ● |
| | 213 PSI coolant | ○ | ○ | ○ | ○ | ○ | ○ |
| | SUPERFLOW high pressure coolant 1,000 PSI | ○ | ○ | ○ | ○ | ○ | ○ |

Standard and Optional Equipment

Automation

1 Tool eye (standard)

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.



2 Automatic chuck jaw open/close

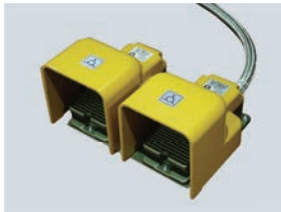
This option automatically opens/closes the chuck jaws via M code, such as when the machine is equipped with a bar feeder system or gantry robot.

3 Hydraulic pressure interlock (standard)

Machine operation is automatically stopped after hydraulic pressure anomalies are detected by a pressure switch.

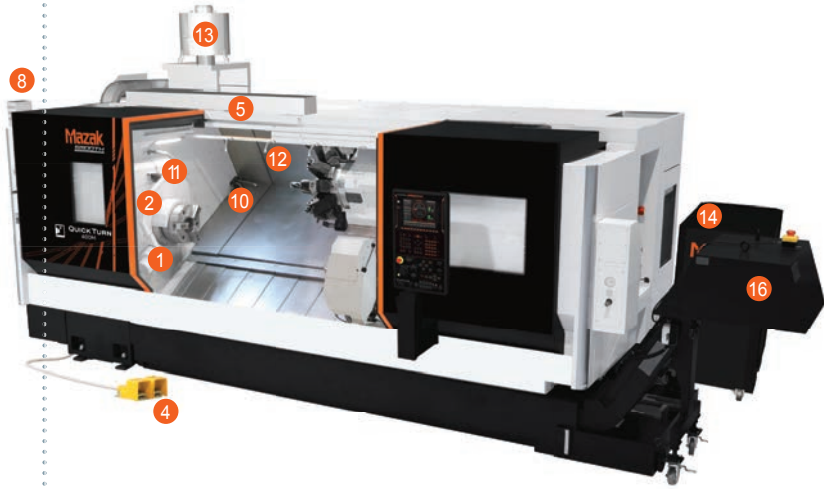
4 Double foot-pedal switch

The double foot-pedal switch is used to open/close the chucks separately.



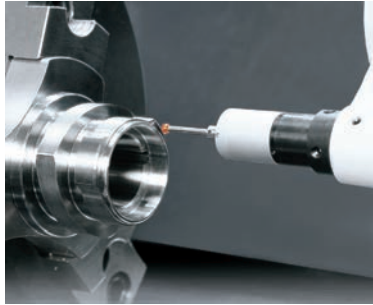
5 Automatic front door

The front door automatically opens and closes. The door will stop automatically if it contacts an obstruction while closing.



6 Automatic workpiece measurement

This function uses a turret-mounted touch sensor to automatically measure various dimensions of machined workpieces, perform tool corrections and maintain machining accuracy during unattended operations.



7 Automatic power ON/OFF + warm-up operation

Using a timer, power can be automatically turned on and off, including for performing warm-up operations (standard equipment with MAZATROL SmoothG).

8 Status light

Consists of three lights. From top to bottom: red for alarm, yellow for machining completion and green for automatic operation.

Coolant

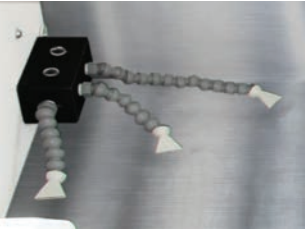
9 Flood coolant (standard)

The cutting fluid within the coolant tank is pumped up by the coolant pump located to the right of the coolant tank, and is discharged from the nozzles of the turret. The discharged cutting fluid returns to the coolant tank through a chip-receiving plate.



10 Cover coolant (standard)

Coolant discharge prevents chips from accumulating in the machining area.



11 Additional coolant nozzle for headstock

Coolant is discharged from a nozzle located in the upper part of the machining area to remove chips from the chuck and workpiece and to minimize heat generated by cutting.



12 Niagara coolant

Coolant is discharged from top of the machine to prevent chips from accumulating.



13 Mist collector

Coolant or oil mist is removed from the machining area in order to maintain a safe and clean work environment.

14 SUPERFLOW high-pressure coolant system

Featuring an energy-efficient diaphragm pump and high-performance cyclone filter with minimal maintenance requirements, the SUPERFLOW system allows operators to set coolant pressure between 0-7 MPa using M code.



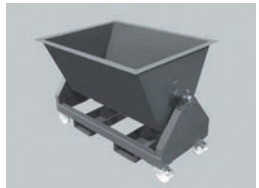
15 Coolant temperature control

Coolant will become hot due to the heat generated by machining and may cause thermal displacement to machine components, which may negatively affect machining accuracy. The coolant chiller unit maintains the coolant at room temperature to ensure high-accuracy machining over extended periods of operation.

Chip disposal

16 Chip conveyor (hinge/side disposal)

Coolant discharge prevents chips from accumulating in the machining area.



17 Chip bucket (rotary or fixed type)



Environmentally 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 in which 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.

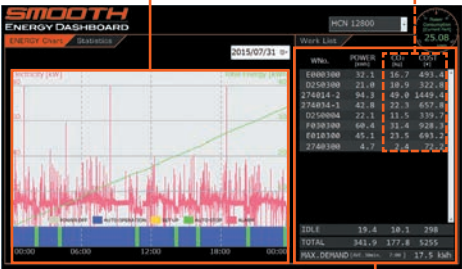
Automatic-off LED worklights and CNC screens is standard equipment for the QUICK TURN 400/450 Series. The chip conveyor automatically stops operation five minutes after cycle completion for reduced electrical power consumption.

High-efficiency lubrication system delivers the optimal amount of grease to the linear roller guides and ballscrews with lower lubrication consumption. The grease lubrication system eliminates tramp oil to extend the service life of the coolant.

SMOOTH (MAZATROL SmoothG) OPTION

The Energy Dashboard provides a convenient way to visually monitor energy consumption and analysis.

Energy consumption displayed on graph Displays approximate CO₂ emission and electrical power cost



Energy consumption by workpiece

Process screen display

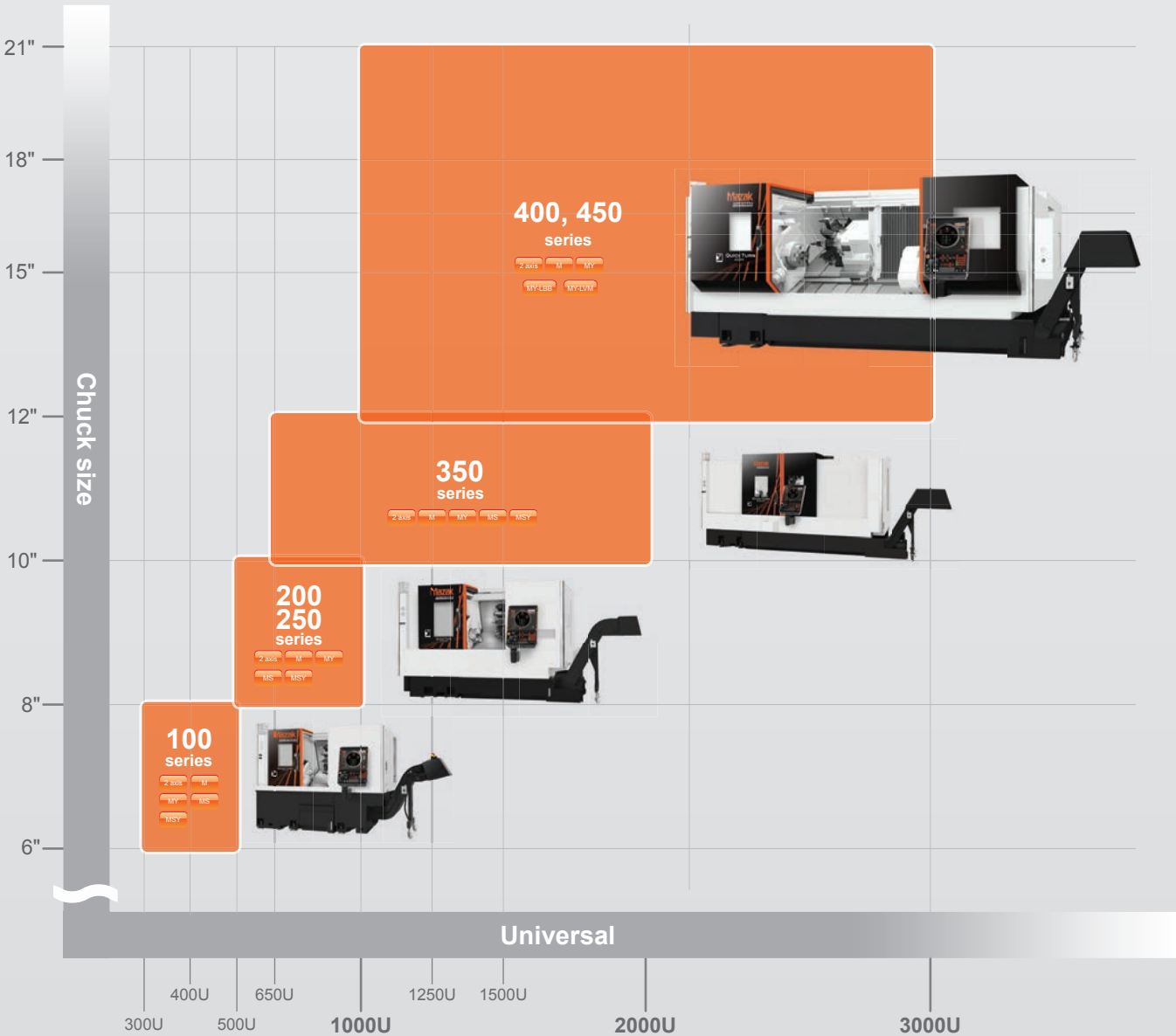
- Total energy consumption of workpiece in operation
- Current energy consumption



QUICK TURN 400M (2000U) [MAZATROL SmoothG]

QUICK TURN Series range

Extensive series range to meet a wide range of machining requirements.



Mazak

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- Specifications are subject to change without notice.
- This product is subject to all applicable export control laws and regulations.
- The accuracy data and other data presented in this catalogue were obtained under specific conditions. They may not be duplicated under different conditions (room temperature, workpiece materials, tool material, cutting conditions, etc.).

QUICK TURN 400/450 SERIES 18.09.0 SH 99J1A0917E2

QUICK TURN 400/450 SERIES

