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POWER MASTER

Mazak

S E R I E S



Flatbed CNC turning center widely used in the oil industry for many years

POWER MASTER SERIES

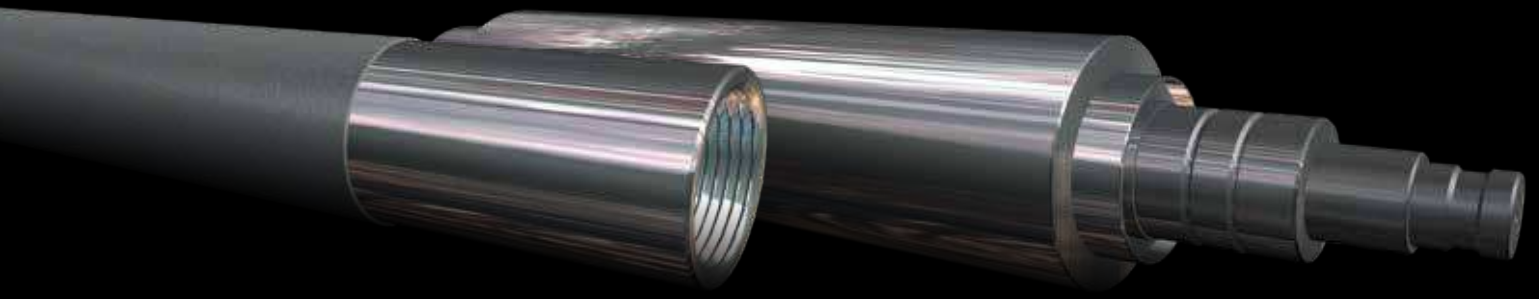
Wide range of available spindle bores: $\varnothing 118$ mm (4.64"),
 $\varnothing 260$ mm (10.23"), $\varnothing 320$ mm (12.6"), $\varnothing 375$ mm (14.76")

AC 45 kW (60 HP) spindle motor with 7.28 kN·m (5369 ft·lbs)
of torque for heavy-duty machining

MAZATROL SmoothC CNC for
unsurpassed ease of operation

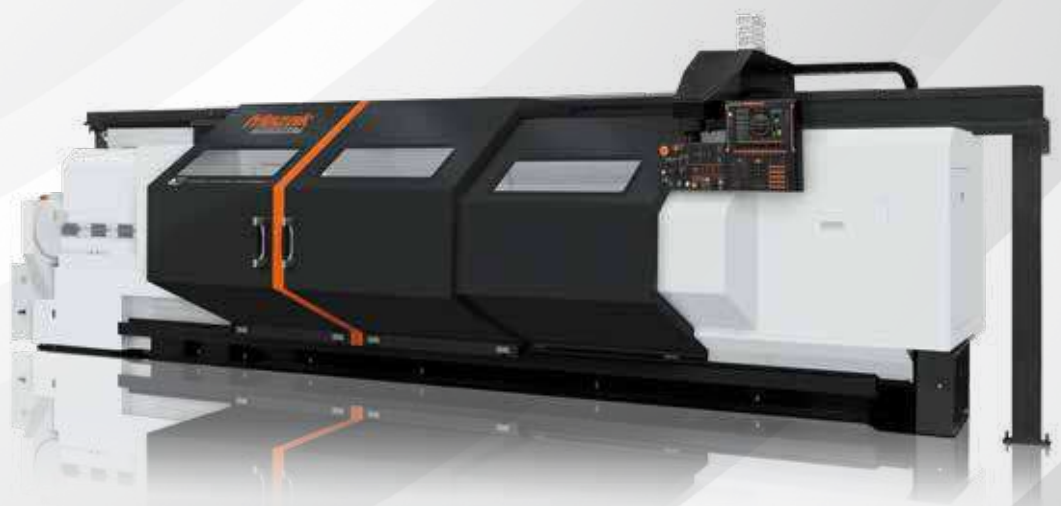


POWER MASTER Universal



POWER MASTER CHUCKER

- Maximum workpiece diameter $\varnothing 1000$ mm (39.37")
- Largest spindle in this turning-center class
- Octagonal turret for heavy-duty machining



POWER MASTER UNIVERSAL

- High-efficiency machining of long-shaft workpieces
- Exceptional versatility thanks to octagonal disk turret + 6-tool drum turret

Higher productivity

Spindle

High torque for fast cycle times and heavy-duty machining

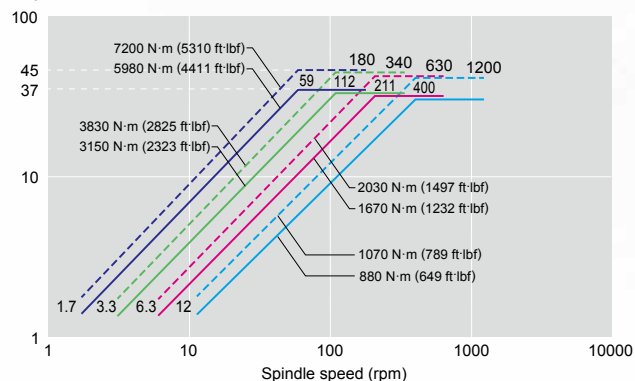
The 45 kW (60 HP) spindle motor produces a maximum torque of 7.28 kN-m (5369 ft-lbs) and has 4 hydraulically shifted gear ranges for full power cutting on large diameter workpieces.

Spindle output/torque diagram

ø118 mm (4.64") spindle bore (45 kW)

- LL-range output (30-min. rating)
- LL-range output (cont. rating)
- LH-range output (30-min. rating)
- LH-range output (cont. rating)
- HL-range output (30-min. rating)
- HL-range output (cont. rating)
- HH-range output (30-min. rating)
- HH-range output (cont. rating)

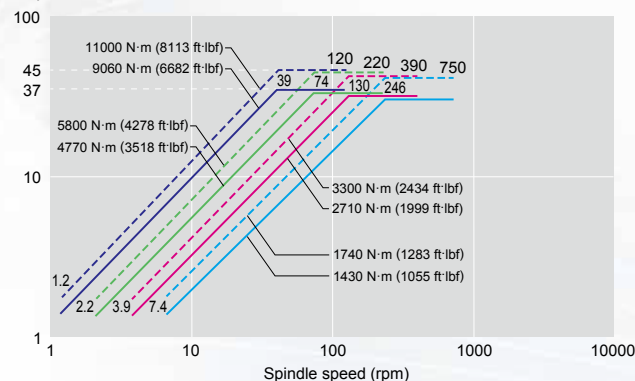
Output (kW)



ø260 mm (10.23") spindle bore (45 kW) **OPTION**

- LL-range output (30-min. rating)
- LL-range output (cont. rating)
- LH-range output (30-min. rating)
- LH-range output (cont. rating)
- HL-range output (30-min. rating)
- HL-range output (cont. rating)
- HH-range output (30-min. rating)
- HH-range output (cont. rating)

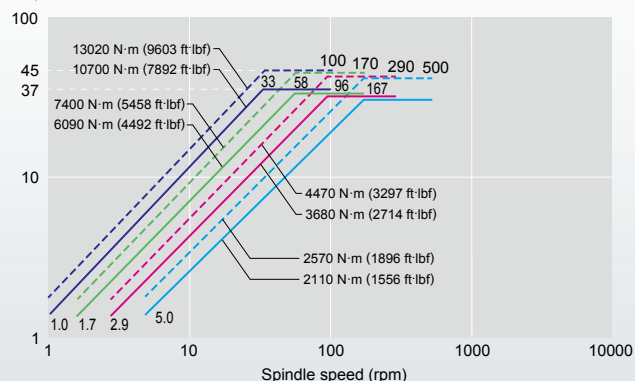
Output (kW)



ø320 mm (12.6") spindle bore (45 kW) **OPTION**

- LL-range output (30-min. rating)
- LL-range output (cont. rating)
- LH-range output (30-min. rating)
- LH-range output (cont. rating)
- HL-range output (30-min. rating)
- HL-range output (cont. rating)
- HH-range output (30-min. rating)
- HH-range output (cont. rating)

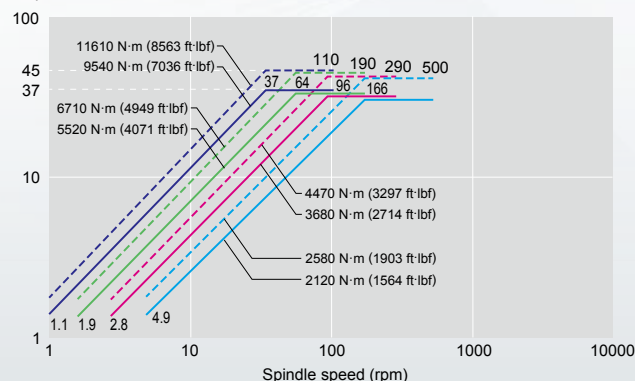
Output (kW)



ø375 mm (14.76") spindle bore (45 kW) **OPTION**

- LL-range output (30-min. rating)
- LL-range output (cont. rating)
- LH-range output (30-min. rating)
- LH-range output (cont. rating)
- HL-range output (30-min. rating)
- HL-range output (cont. rating)
- HH-range output (30-min. rating)
- HH-range output (cont. rating)

Output (kW)



Large spindle bores

The standard spindle bore measures ø118 mm (4.64"), with ø260 mm (10.23"), ø320 mm (12.6"), ø375 mm (14.76") spindle bores optionally available.



Turret

Octagonal turret (Chucker)

Providing a larger maximum cutting diameter and reduced workpiece interference, the tool holder mounting face is shifted 75 mm (2.95") from the turret centerline. This enables a maximum cutting diameter of $\varnothing 870$ mm ($\varnothing 34.25$ ") with standard tooling, the largest for this machine class. The maximum distance from the spindle face to the holder mounting face is 1600 mm, resulting in an extremely large machining envelope.



Octagonal disk turret + 6-tool drum turret (Universal)

The front 8-station disk turret can mount 8 tools ($\varnothing 32$ mm $\times$ 160 mm ($\varnothing 1.26$ " $\times$ 6.3")) and the back turret can mount 6 tools – I.D., O.D. and facing tool holders.



Quick tool change

Operate two cam lock pins for quick changes of facing and O.D. tool holders on the 6-tool turret.



Machine design

High-rigidity bed

The wide machine base is a rigid foundation for heavy-duty machining thanks to its reinforcement ribs. For durability, the V-shaped sideways are precision ground after heat treatment. Additionally, machined chips are smoothly removed from the machining area by the inclined chutes in the machine bed.



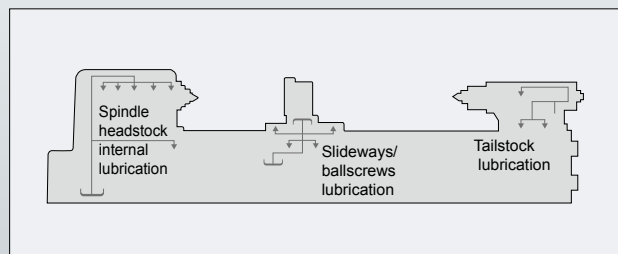
Tailstock with built-in center

The tailstock has a large 150 mm diameter quill with built-in MT5 center. The tailstock is clamped to the bed with 12 tons of force and can support workpieces up to 3000 kg (6614 lbs). The tailstock body is easily positioned by the carriage.



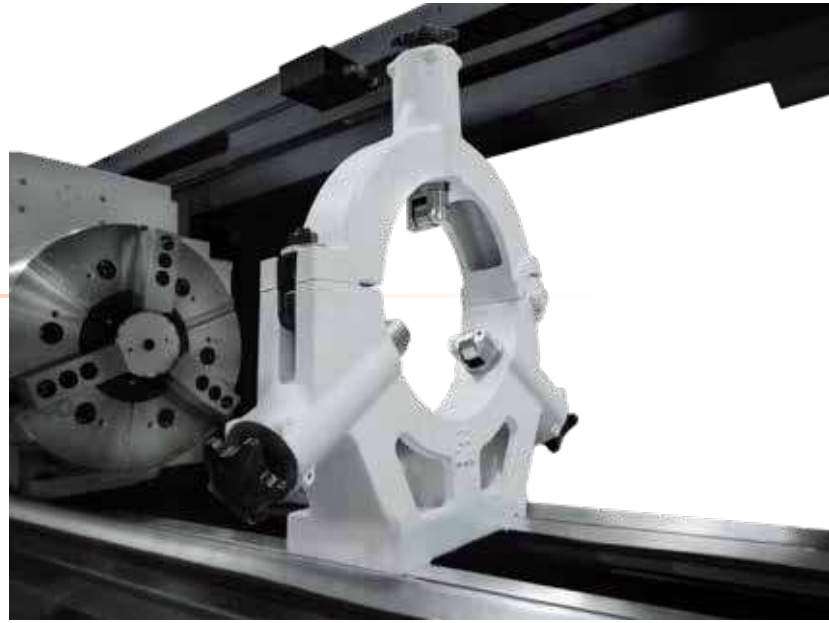
Lubrication system

To maintain high accuracy over a long service life, the ballscrews, sideways and Z-axis feed gearbox are lubricated by oil supplied by a pump located in the headstock. The turret gearbox and X-axis feed gearbox are lubricated by an oil bath system. Tailstock lubrication is performed by manually operating a push lever.



Steady rest OPTION

Various sizes of steady rests ($\varnothing 20 \text{ mm} \sim \varnothing 250 \text{ mm}$ ($\varnothing 0.79" \sim \varnothing 9.84"$), $\varnothing 150 \text{ mm} \sim \varnothing 350 \text{ mm}$ ($\varnothing 5.91" \sim \varnothing 13.78"$), $\varnothing 250 \text{ mm} \sim \varnothing 450 \text{ mm}$ ($\varnothing 9.84" \sim 17.72"$) and $\varnothing 350 \text{ mm} \sim \varnothing 550 \text{ mm}$ ($\varnothing 13.78" \sim 21.65"$)) are optionally available to support long-shaft workpieces.



Rear chuck mounting preparation OPTION

Rear chuck mounting preparation allows a chuck to be mounted on the rear of the spindle. Covers open easily for access to the rear chuck for jaw changeover. For safety, a switch detects if the covers are open and prevents machine operation. ($\varnothing 375 \text{ mm}$ ($\varnothing 14.76"$) bore shown)



MAZATROL CNC System

MAZATROL **SMOOTH C**

Utilizing traditional conversational MAZATROL programming, the new SmoothC Control is designed for ease of operation with simplified key operation.



USB interface

Transfer program and tool data

SD card slot

Transfer program and tool data

Press menu keys under the display to go to other pages for program 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 overall process status in an easy-to-understand manner.



- **Machining**
Axes in operation and load on motors
- **Tool data**
Status of tool layout
- **Maintenance**
Overview of the status of items requiring maintenance
- **Programming**
Simulation time and machining time
- **Setup**
Status of workpiece coordinate setting

MAZATROL conversational programming

Easily generate programs for basic turning, milling, drilling and tapping.



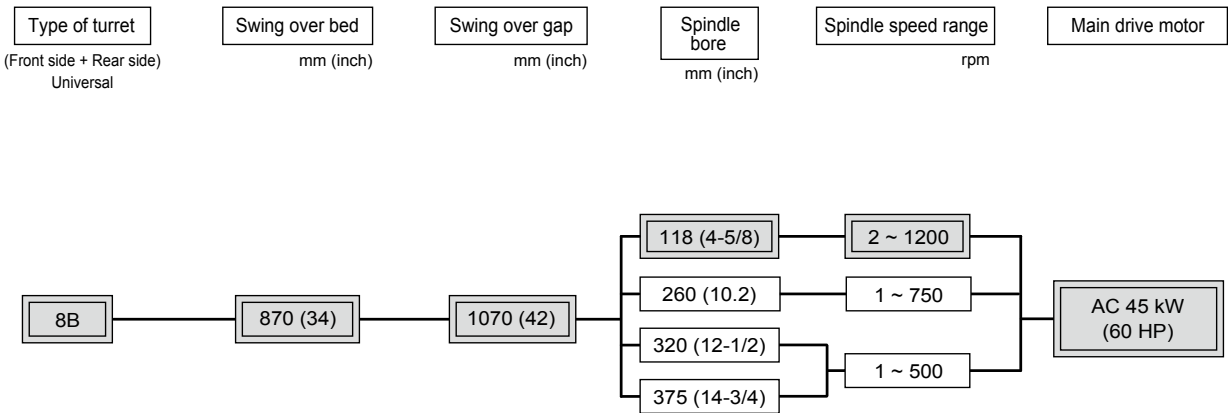
MAZATROL SmoothC Specifications

	MAZATROL	EIA
Number of controlled axes	Simultaneous 4 axes	
Minimum input increment	0.0001 mm, 0.00001 inch, 0.0001 deg	
High-speed, high-precision control	Rapid traverse overlap	
Interpolation	Positioning (interpolation), Positioning (non-interpolation), Linear interpolation, Circular interpolation, Constant lead threading, Re-threading*, Thread start point compensation*, Thread cut-speed override*	Positioning (interpolation), Positioning (non-interpolation), Linear interpolation, Circular interpolation, Constant lead threading, Variable lead threading, NURBS interpolation*, Re-threading*, Thread start point compensation*, Thread cut-speed override*
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, 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, G0 slope constant*
Program registration	Number of programs: 256 (Standard)/960 (Max.) Program memory: 2MB, Program memory expansion: 8MB*, Program memory expansion: 32MB*	
Control display	Display: 10.4" panel, Resolution: VGA	
Spindle function	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 set)	
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 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, Restart2 Collation stop, Machine lock
Manual measuring function	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 coordinate measurement, Workpiece offset measurement, Tool eye measurement
Automatic measuring function	Workpiece measurement, Sensor calibration, Tool eye auto tool measurement, Tool breakage detection	Workpiece measurement, Sensor calibration, Tool eye auto tool measurement, Tool breakage detection
Interface	PROFIBUS-DP*, EtherNet/IP*, CC-Link*	
Memory	SD card interface, USB	
EtherNet	10M/100M/1Gbps	

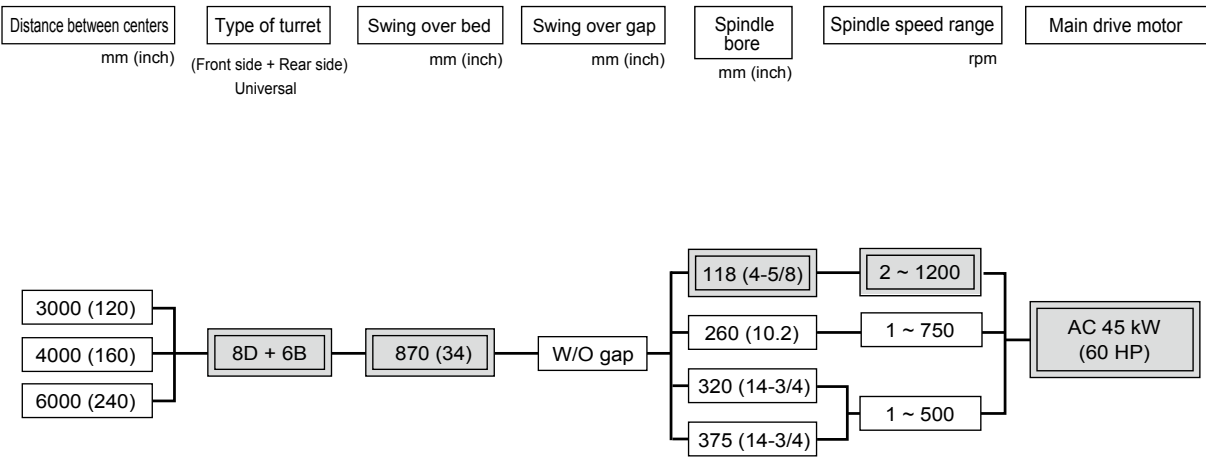
*Option

Wide Range of Specifications

Chucker



Universal



STD

8B: Octagonal turret 8D: Octagonal disk 6B: Hexagonal turret

Standard Machine Specifications

		Chucker	Universal	
Capacities			3000U	4000U
	Swing over bed	870 mm (34")	870 mm (34")	
	Swing over carriage	920 mm (36.22")	840 mm (34.25")	
	Swing over cross-side	-	450 mm (17.72")	
	Max. machining diameter	1000 mm (39.37")	840 mm (33")	
	Max. machining length	-	2985 mm (117.51")	4005 mm (157.67")
	Swing over gap	1070 mm (42")	-	
	Width of gap	510 mm (20.08")	-	
Travel	X axis stroke	635 mm (25.00")	670 mm (26.38")	
	Z axis stroke	1150 mm (45.27")	3075 mm (121.06")	4095 mm (161.22")
Turret	Type of turret	8-tool turret	8-tool disk turret & 6-tool turret	
Traverse rate	Rapid traverse rate	X: 12000 mm/min. (472 IPM) Z: 12000 mm/min. (472 IPM)		
Tailstock	Diameter of tailstock quill	-	150 mm (5.91")	
	Tailstock center	-	MT. No.5 (built-in center)	
	Travel of tailstock	-	160 mm (6.30")	
Motor	Spindle motor	AC 45 kW (60 HP) (30 min)/37 kW (50 HP) (cont. rating)		
Power source	Electric power supply	75 kVA (30 min)/63.7 kVA (cont. rating)		
	Air pressure	0.5 MPa (5kgf/cm ²) (73 PSI)		
Machine size	Machine height	2180 mm (85.82")	2153 mm (84.76")	
	Floor space requirements	2795 mm × 5240 mm (110.04" × 206.30")	2760 mm × 6990 mm (108.66" × 275.20")	2760 mm × 8010 mm (108.66" × 315.35")
	Machine weight	9450 ~ 10585 kg (20834 ~ 23336 lbs)	13760 ~ 14895 kg (30336 ~ 32838 lbs)	14760 ~ 15895 kg (32541 ~ 35042 lbs)

*Option

Spindle (Chucker and universal)

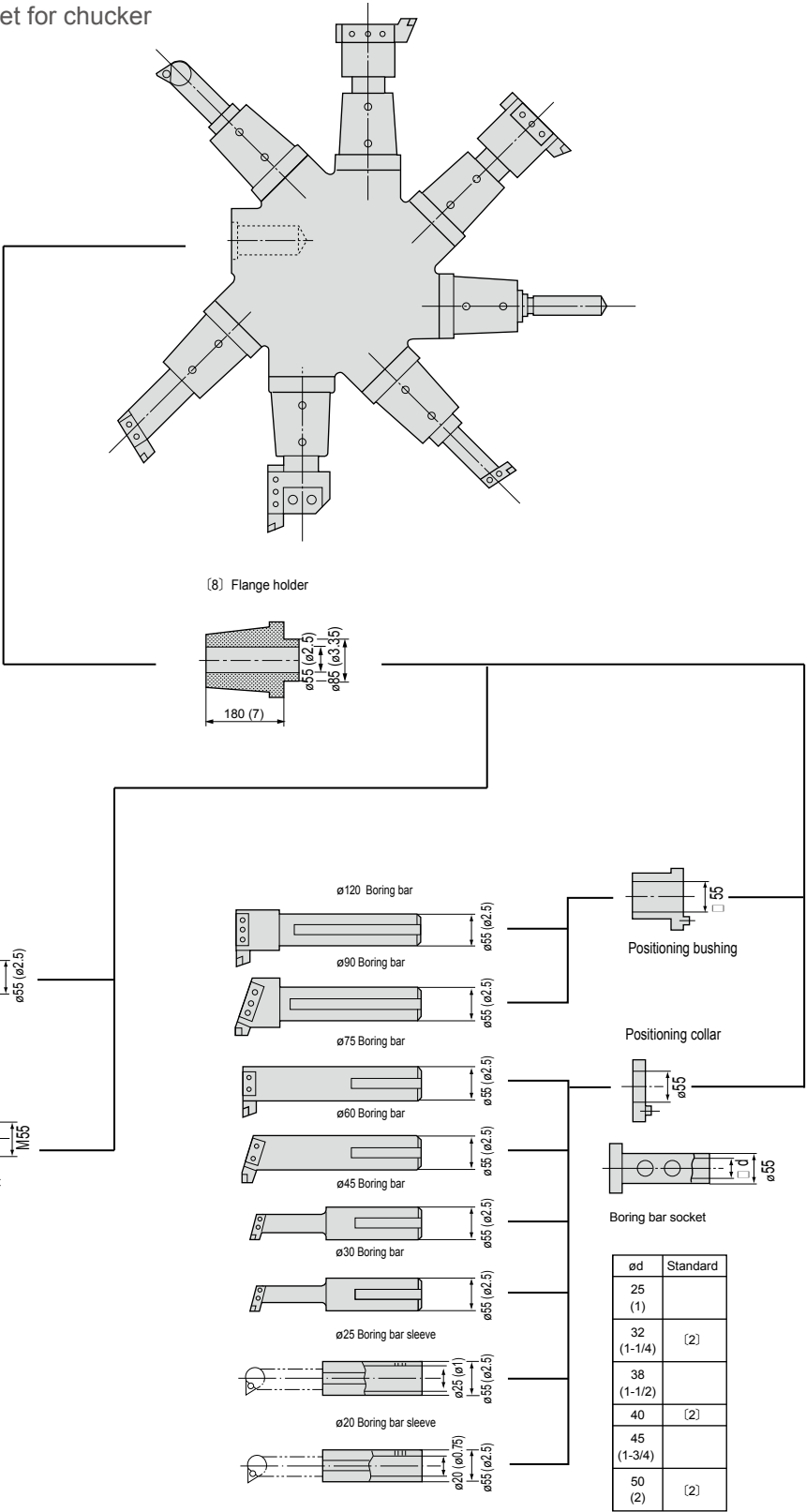
Spindle speed	2 ~ 1200	*2 ~ 750	*1 ~ 500
Spindle nose	A1-11	*A2-15	*A2-20
Spindle bore	118 (4.64")	*260 (10.23")	*320 (12.60"), *375 (14.76")

*Option

Tooling system POWER MASTER Chucker

mm (inch)

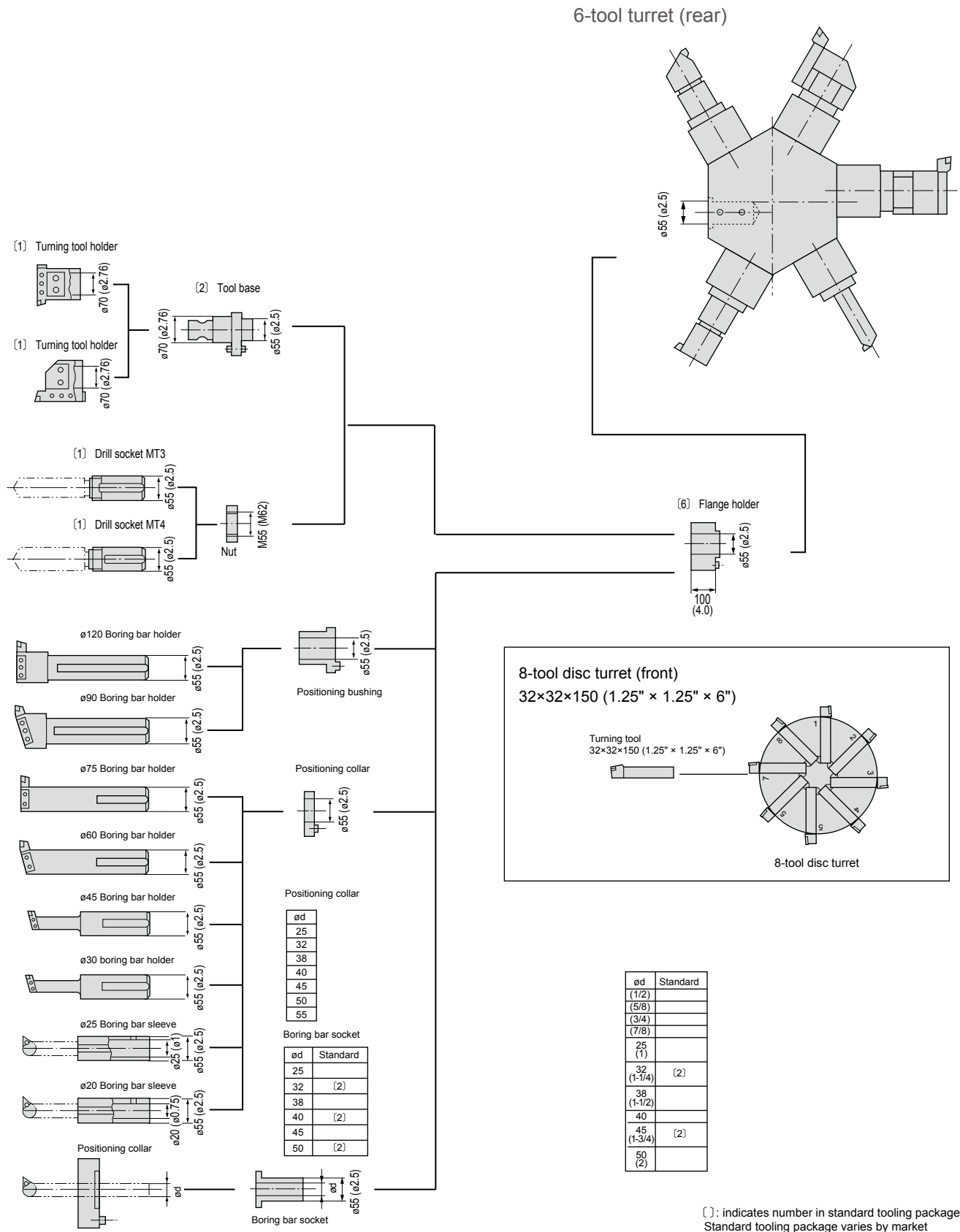
8-tool turret for chucker



(): indicates number in standard tooling package
Standard tooling package varies by market

Tooling system POWER MASTER Universal

mm (inch)



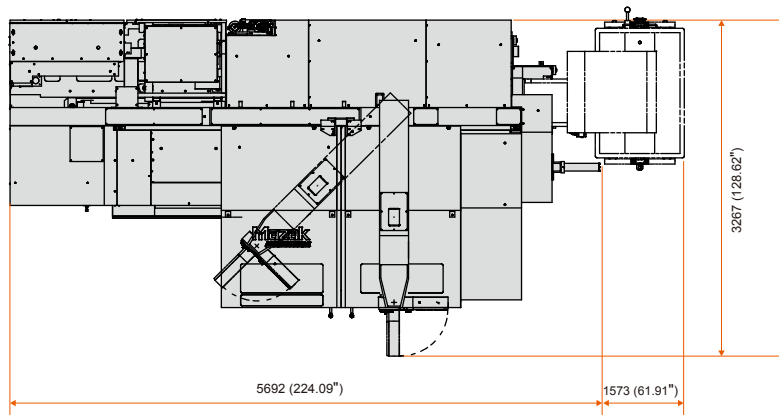
Standard and Optional Equipment

		●: Standard O: Option -: N/A	
		Chuck	Universal
Machine	Work light	●	●
	8 disk + 6 boring turret	-	●
	8 position boring turret	●	O
	Programmable quill	-	O
	Manual tailstock	-	●
	Tailstock built-in live center MT5	-	●
	Tailstock MT5 (dead center type)	-	O
	Spindle bore ø118 mm (ø4.6")/1200 rpm	O	O
	Spindle bore ø260 mm (ø10.2")/750 rpm	O	O
	Spindle bore ø320 mm (ø12.5")/500 rpm	O	O
	Spindle bore ø375 mm (ø14.8")/500 rpm	O	O
	12" ~ 18" non through-hole chuck (Kitagawa)	O	O
	12" ~ 18" through-hole chuck (Kitagawa)	O	O
	12" ~ 32" jaw independent chuck	O	O
	Chuck foot-switch (rotary system)	●	●
	Steady rest/roller-j/20-250 mm (0.78"-9.8")	-	O
	Steady rest/roller-j/150-350 mm (5.9"-13.8")	-	O
	Steady rest/roller-j/250-450 mm (9.8"-17.7")	-	O
	Steady rest/roller-j/350-550 mm (13.8"-21.7")	-	O
	Rear chuck mounting preparation	O	O
Automation	Tool eye (manual)	O	O
	Automatic chuck jaws open/close	O	O
	Auto power off (breaker trip)	●	●
	Auto power ON/OFF + warm-up operation	O	O
	Status light (3 colors, square)	O	O
Safety equipment	Hydraulic pressure interlock	●	●
	Mist collector (GP2000) req. total cover	O	O
	Current leakage circuit breaker (200MA)	O	O
	Overload detection system	O	O
	Total cover	●	●
	Relocation device	●	●
Coolant/ chip disposal	Complete coolant system	●	●
	Full coverage chip and coolant guard	●	●
	High pressure coolant 5 kg (71 PSI), 20 L/min, 5.3 gal/min	O	O
	Coolant through spindle	O	O
	High volume coolant 2.7 kg (38 PSI), 60 L/min, 16 gal/min	O	O
	Chip conveyor side discharge	O	O
	Chip bucket (swing type)	O	O
	Chip bucket (fixed type)	O	O
Other	One set of manuals	●	●
	One set of adjusting tools	●	O
	Manual pulse generator (wired/detachable)	O	O
	Maximum program size: 8MB	O	O
	Re-threading	O	O
	Thread start point compensation	O	O
CNC	MAZATROL SmoothC CNC	●	●

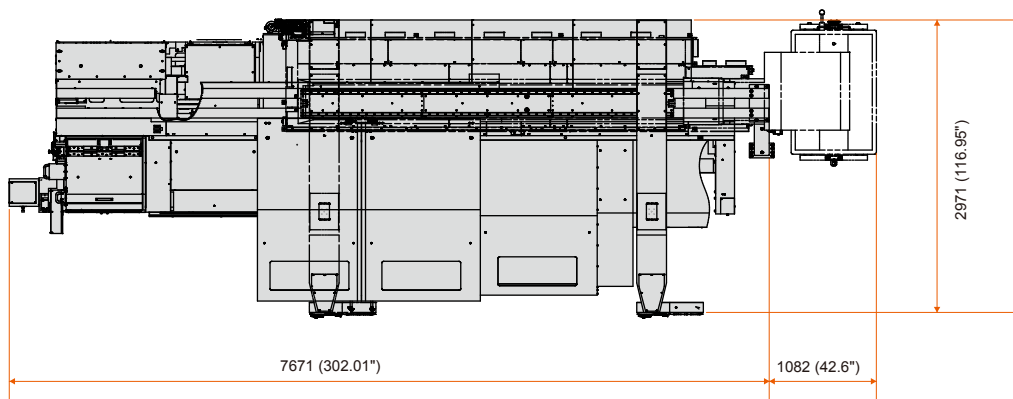
Machine Dimensions

Unit: mm (inch)

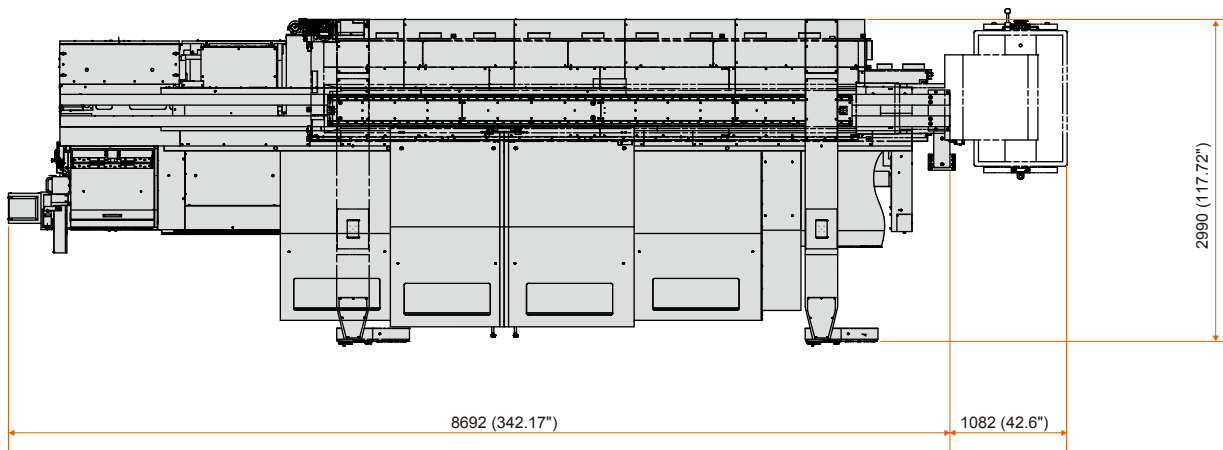
Chuck



Universal 3000U



Universal 4000U





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