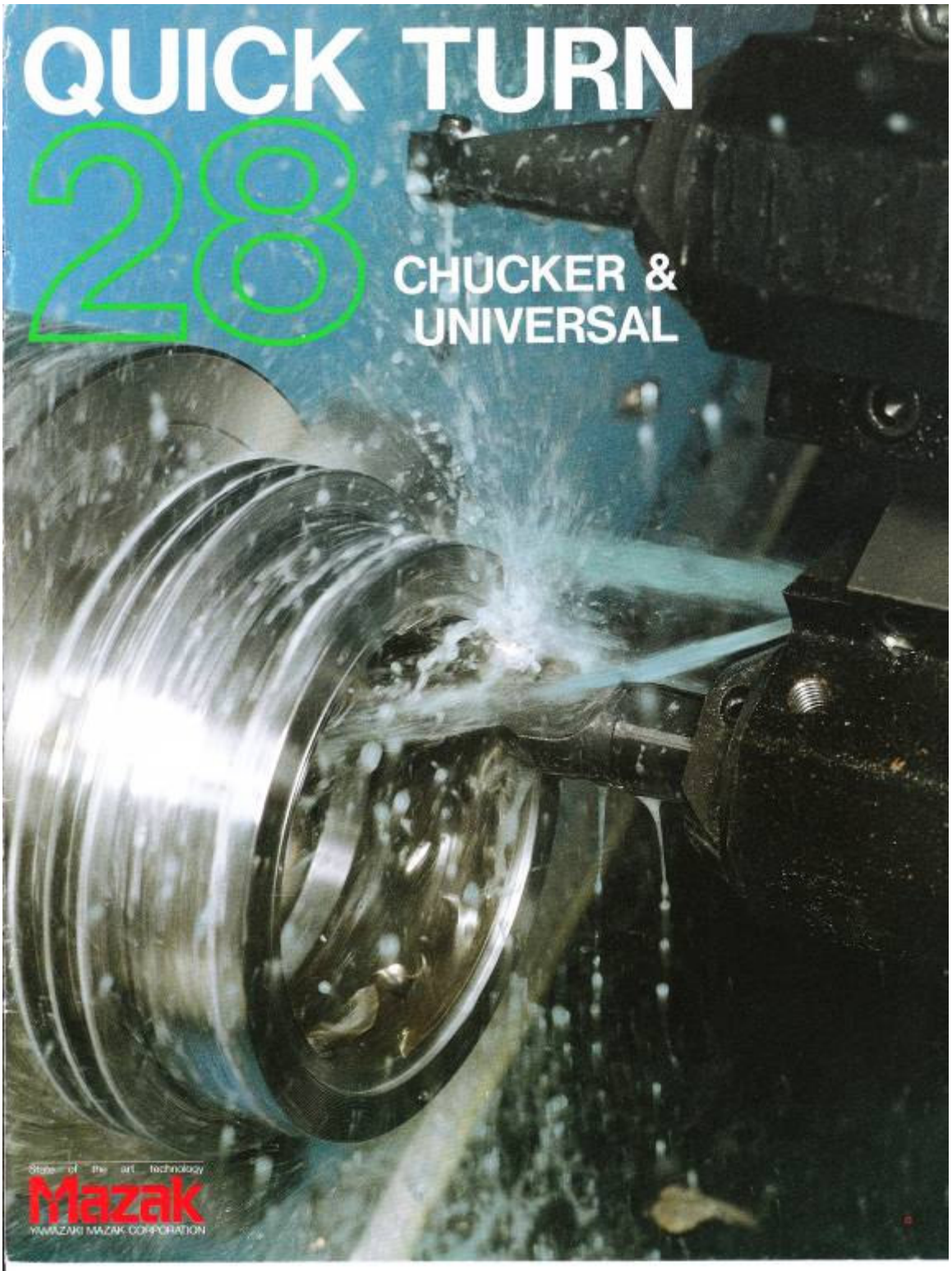
QUICK TURN 28

CHUCKER & UNIVERSAL



Stage of the art technology

Mazak

YAMAZAKI MAZAK CORPORATION

The Decisive CNC Turning Center for High

Incorporporating 70 years of Mazak machine tool technology.

Universal type shown with optional automatic parts catcher and large door window. Standard machine colors for U.S. market are blue (Munsell no. 4PB 4/10) and light gray (Munsell no. 2.5Y 7/0.5). Other market machine colors are green (no. 8.5GY 3.7/6.3) and light gray (no. 2.5Y 7/0.5).

QUICK TURN 28

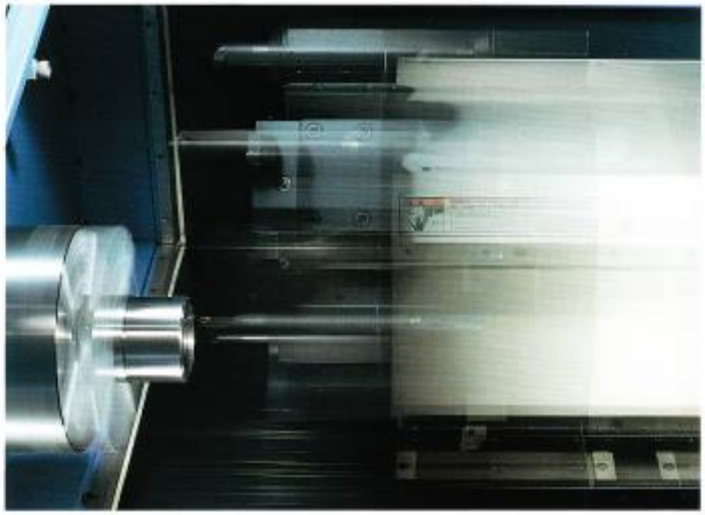
CHUCKER & UNIVERSAL

Defining New Standard

HIGH SPEED

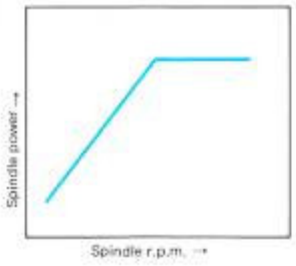
Incomparable speed for minimum cycle time.

- Non-cutting time is held to the absolute minimum by the world's fastest rapid traverse rate – Z-axis: 24 m/min (945 IPM), X-axis: 12 m/min (472 IPM) and the fastest turret indexing for this class of turning center – only 0.6 second/step.

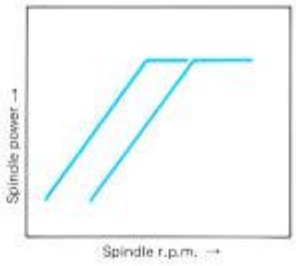


- Driven by a wide-range, constant-output motor and gearless transmission, the spindle does not have to be stopped to change gear ranges. This means that time formerly wasted on gear changes has been eliminated, resulting in shorter workpiece cycle times.

QUICK TURN 28



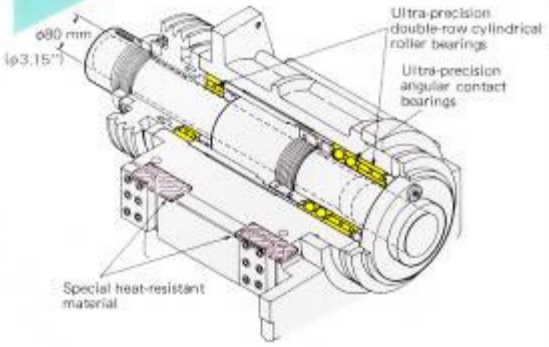
Conventional Machine



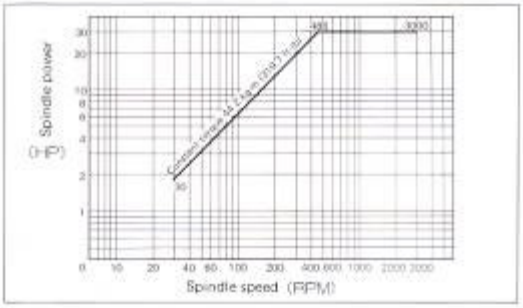
s In Precision, Speed, and Productivity.

HIGH ACCURACY HIGH RIGIDITY

High Standards of Accuracy – the Result of Extensive Research.



AC30HP(22kW) / 30~3000 RPM

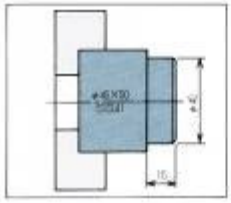


- The headstock is designed to minimize the effects of thermal distortion in order to provide high-accuracy over extended periods of continuous operation. The symmetrical spindle housing is separated from the machine bed by a special insulation plate so that any heat generated by operation will not displace the spindle center. In order to supply the rigidity required for heavy-duty cutting, the spindle is supported by double row cylindrical roller bearings and combined angular contact ball bearings at the front, and double row cylindrical roller bearings at the rear.

- The wide-range, constant output spindle motor ensures heavy duty cutting ability, even at low RPM, without a multi-gear range transmission. The standard 30 HP Quick Turn 28 motor assures unequaled performance for this class of turning center.

CUTTING ACCURACY (TEST RESULT)

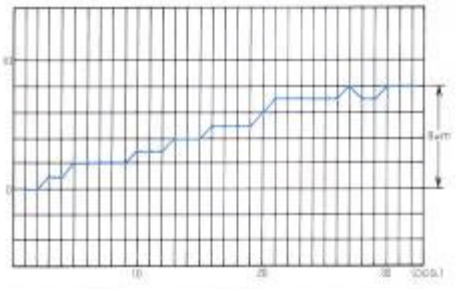
Superior machine design for superior machining accuracy. Test results within 10μm (0.0004 in.)



Cutting conditions :

Material	: SS41
Insert	: Cermet
Surface speed	: 250 m/min. (820 ft/min.)
Depth of cut	: 0.14 mm (0.005")
Feedrate	: 0.15 mm (0.0059")

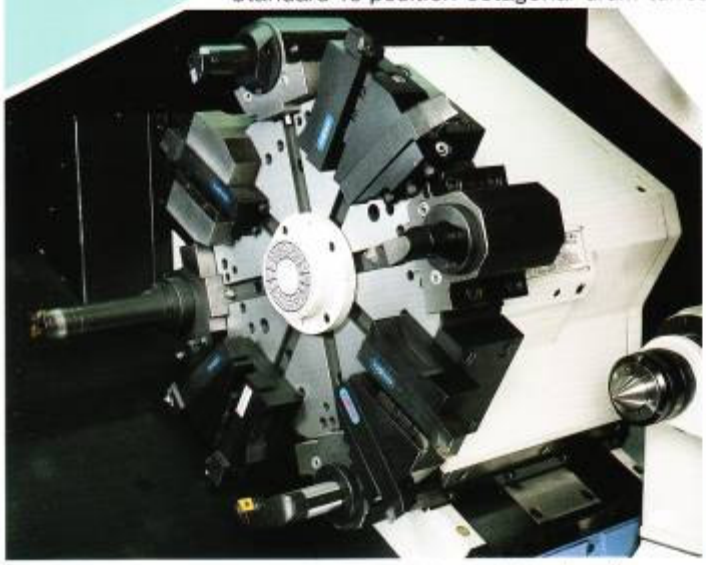
Continuous Machining Accuracy within 10μm (0.0004 in.) (Test Results)

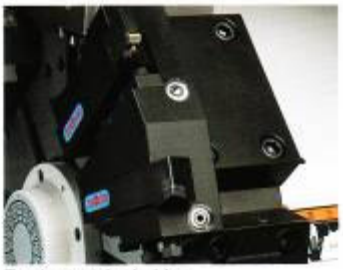


WIDE RANGE

Wide machining area.

Standard 16 position octagonal drum turret.

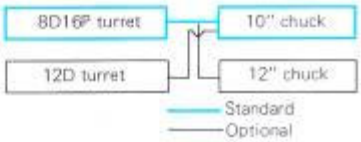




Tandem turning holder

Block tooling holder

- Each of either the tandem turning tool holder or the block tooling holder can mount 2 OD cutting tools which allows a maximum of 16 tools to be mounted on the standard 8D16P turret. This large tool capacity allows permanent set tooling to meet the requirements of a wide variety of workpieces.



- Maximum bar work capacity for this class turning center

Spindle bore dia.	Chuck size (through type)	Max. bar work dia.
φ 80 mm (3.15") Standard	10"	φ64 mm (2.5")
φ104 mm (4.09") Option	12"	φ89 mm (3.5")

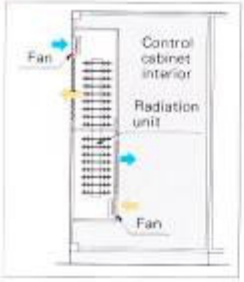
When bar stock is fed by a bar feed system, there are restrictions by the bar feed system, the inner diameter of the chuck draw tube and the auto-parts catcher.

- All controls are conveniently located at the machine front.

HIGH RELIABILITY

Designed for High Reliability.

- High-torque, high-output AC servos are employed. These brushless servo motors have minimum maintenance requirements.
- An absolute position encoder is optionally available. With this option there is no need to immediately return to home after power start-up or an emergency stop.
- The electrical control cabinet is completely enclosed to protect the electronic components from dust, humidity, oil vapors and other contaminants found in the factory environment. Additionally, to maintain the optimum operating temperature, the control cabinet is cooled by an internal heat exchanger.



Designed for High-Accuracy.

Positioning Accuracy	**X-axis**	0.01 mm/100 mm (0.0004"/4")
	Z-axis	0.015 mm/300 mm (0.0006"/12")
Repeatability	**X-axis**	±0.003 mm (±0.00012")
	Z-axis	±0.005 mm (±0.0002")

The above figures are obtained in a room temperature of 22 ± 1°C (71.6°F ± 1.8°F) on a recommended foundation. Measurement was performed according to procedure defined by JIS B6331 after satisfactory machine warm-up.

Productivity.

QUICK TURN 8

Introducing the newest member of the Quick Turn series – The Quick Turn 28, the most advanced CNC turning center avalilable.

QUICK TURN 15

The quick Turn 8, 8G, 15 and 35 have all been extremely well received by the world-wide metalcutting industry. In just over five years of production, more than 10,000 units have been shipped to customers all over the world. To ensure that the Quick Turn 28 is the most advanced CNC turning center available, its design incorporates feedback from customers, results of marketing studies about current turning requirements and the extensive technology and expertise of Yamazaki Mazak, one of the leading machine tool builders of the world. The result is a CNC lathe with unsurpassed speed, precision and quality-designed for factory automation equipment compatibility to meet today's turning requirements.

QUICK TURN 35

The Quick Turn 28 and the other members of the Quick Turn series are produced at the Minokamo plant, one of the most advanced manufacturing facilities of Yamazaki Mazak. There, by the use of advanced, large-scale FMS, total environmental control and super-clean rooms, the production of machines with the highest quality and precision is assured.

FMS machining area.

Super-Clean room

YAMAZAKI MAZAK MINOKAMO CORP.

HIGH PRODUCTIVITY

High Productivity.

Outstanding performance to finish your

MAZATROL reduces programming time to only a fraction of that required for conventional CNC equipment.

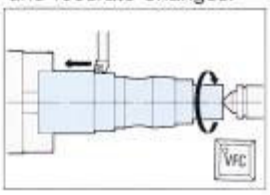
- The MAZATROL CAM T-2 CNC system is standard equipment for the Quick Turn 28. This interactively programmed system features extremely fast and simple programming just by entering answers to questions displayed on the 14" color CRT in conversational English. In addition, a comprehensive simulation function easily allows programs to be thoroughly checked by graphic displays. (Please refer to the MAZATROL CAM T-2 CNC catalogue for detailed information.)

Simulation Function.

- After programming is completed and before actual cutting, a color graphic display shows a representation of the machining. This allows the machining process to be thoroughly checked, including tool interference, cycle time, etc.

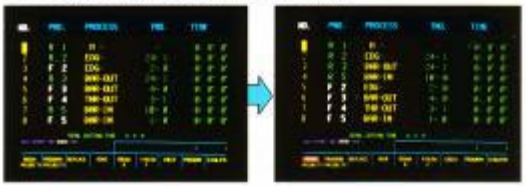
VFC for simplified speed and feedrate changes.

- If programmed cutting conditions are altered during machining by use of the override functions, these changes can be automatically entered in CNC memory by pushing the VFC button and used for subsequent cutting.



Layout Editing.

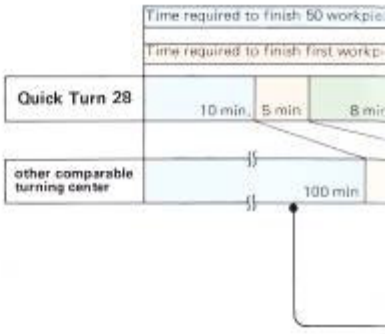
- By simple operation of a few menu keys, machining process sequence is easily changed – such as having all roughing operations first and then all finishing operations. This function easily allows an individual's expertise to be used to set the most appropriate sequence. (Pat. Pending)



Outstanding performance for high productivity.

- The advanced technology of the Quick Turn 28 reduces both preparatory and set-up time plus machine non-cutting time. The conversationally programmed MAZATROL CAM T-2 allows NC programs to be made quickly and easily. The Tool-Eye system, the high-speed rapid traverse rates and turret indexing and other features all contribute to significantly reduce workpiece cycle times when compared to other turning centers in this class.

Total time comparison between the Quick Turn 28 and prototype parts.



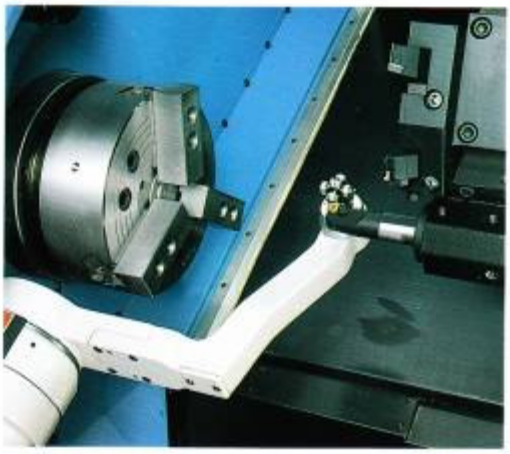
workpieces fast.

Cutting time...

Powerful cutting performance by AC30HP

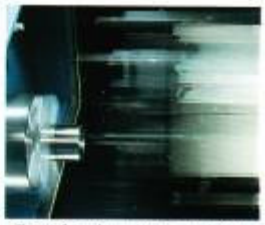
Tool Eye Slashes Tool Set-up Time.

- The tool eye system allows each tool to be set-up in only seconds. This same system can automatically compensate for tool wear and inspect tools for breakage during operation.



Cutting time minimized by high-speed performance.

- 0.6 sec/step



- Z-axis 24 m/min, X-axis 12 m/min (945 IPM) (472 IPM)

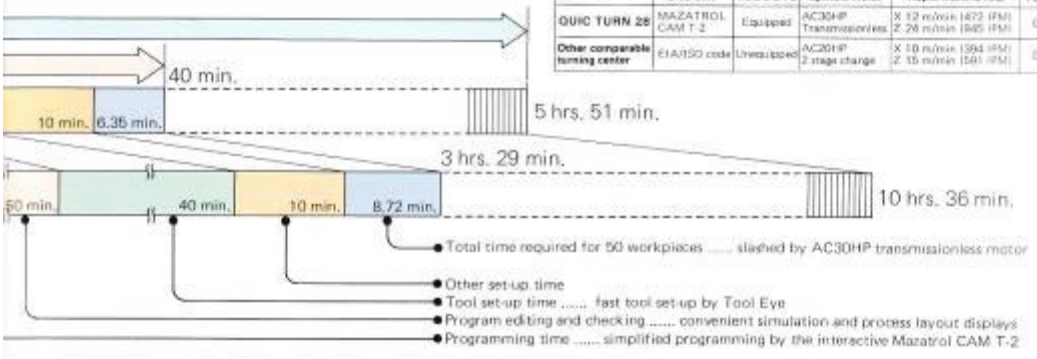
Fully automatic NC tailstock – standard equipment.

- The automatic NC tailstock makes workpiece loading and unloading more convenient for higher productivity.

comparable turning center to machine 50

Data were obtained for machines with the following specifications.

	CNC unit	TOOL EYE	Spindle motor	Rapid traverse rate	Turret INDEX
QUIC TURN 28	MAZATROL CAM T-2	Equipped	AC30HP Transmissionless	X 12 m/min (472 IPM) Z 24 m/min (945 IPM)	0.6 sec/step
Other comparable turning center	EIA/ISO code	Unequipped	AC20HP 2 stage change	X 10 m/min (394 IPM) Z 15 m/min (591 IPM)	0.9 sec/step



Factory Automation Systems Available to Meet Your Unm

FMS turning line at YAMAZAKI MAZAK MINOKAMO CORP.

FACTORY AUTOMATION

A wide range of Factory Automation equipment is available to satisfy any requirement: robot systems, bar feed systems, the Mazak CAM system, Tool Eye, and others.

FLEX Robot System.

- The FLEX robot features extremely simple set-up so that operation can begin in very little time. For this reason, the FLEX can be efficiently used for unmanned operation in the machining of small and medium size lots.

Mazak CAM System.

- Allows the preparation of NC programs in an office and can support a DNC system for up to 6 machine tools equipped with the Mazatrol CNC.

Mazak Micro Disk.

- NC data storage on compact 3 1/2" floppy disks provides convenient data management.

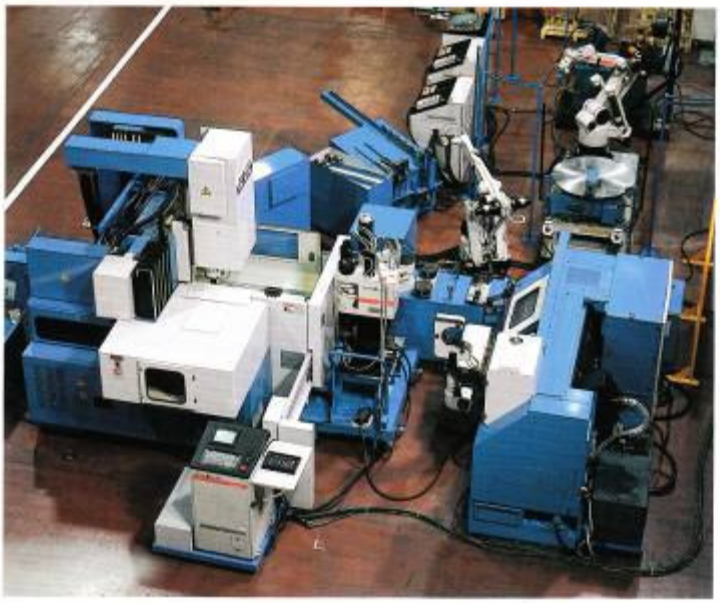
Bar Feed System.

- A bar feed system can make efficient automatic operation possible by the automatic feeding of bar stock up to 64 mm (2.52") in diameter through the spindle.

nned Operation Requirements.

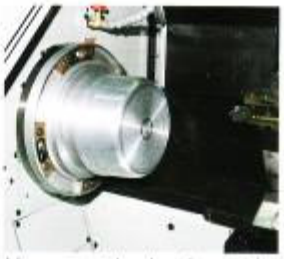
Automated systems.

Mazak can provide you with a total system package to realize unmanned operation in your shop – from process planning, system designing and manufacturing to system installation, start-up and service support. The applications of the example systems shown here range from the production of a wide variety of workpieces in small size lots to mass production.



Special workholding chucks.

Special chucks are available to meet the requirements of complex or unusual workpieces.

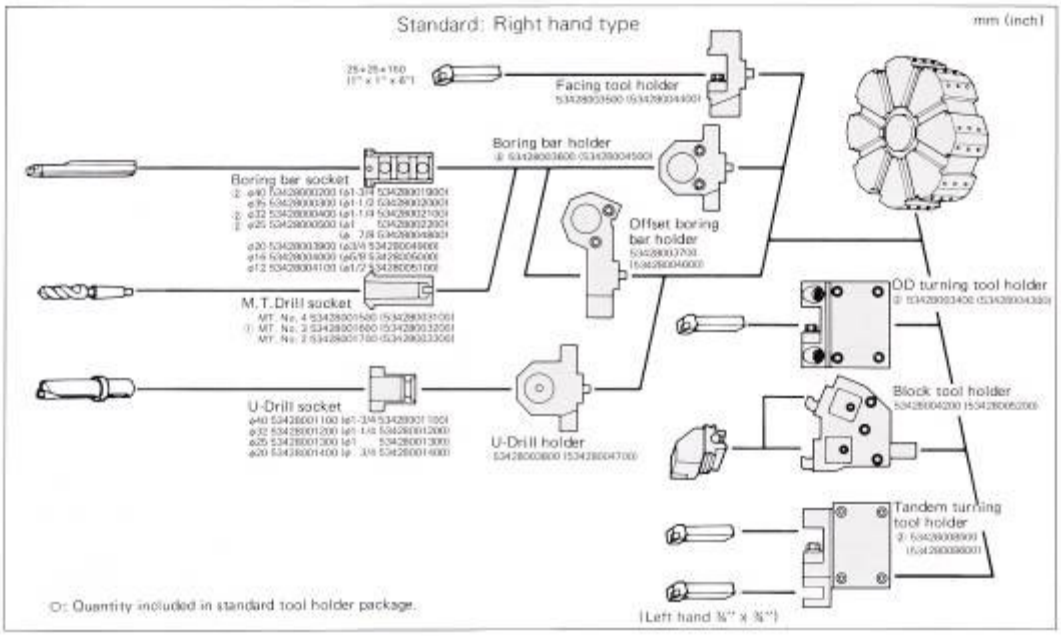


Vacuum chuck for thin workpieces.

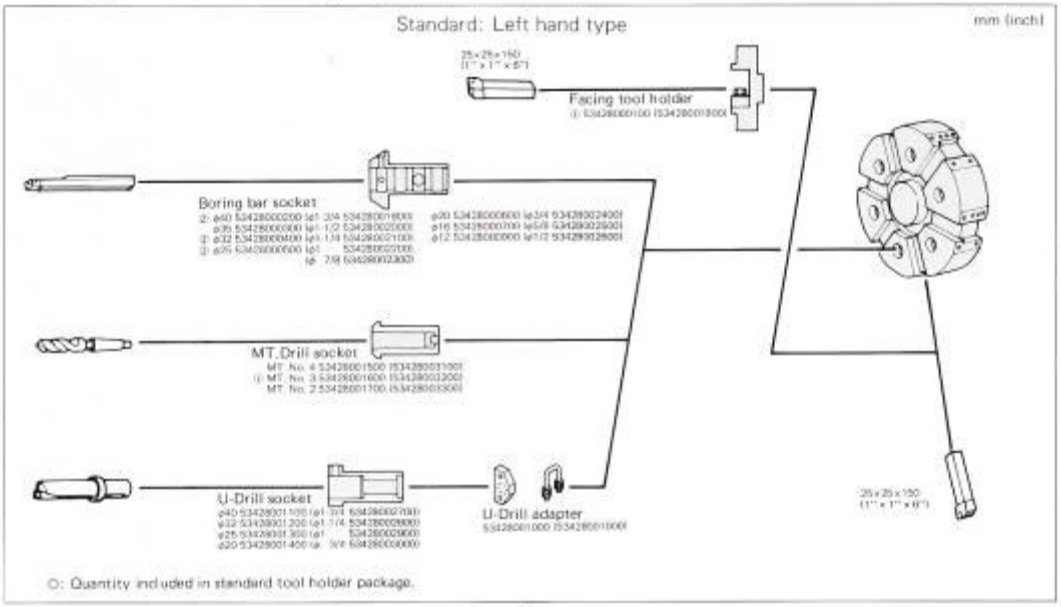
Finger chuck for ring workpiece.

Universal chuck for cast or complex workpieces.

16 position octagonal drum turret. (8D16P)

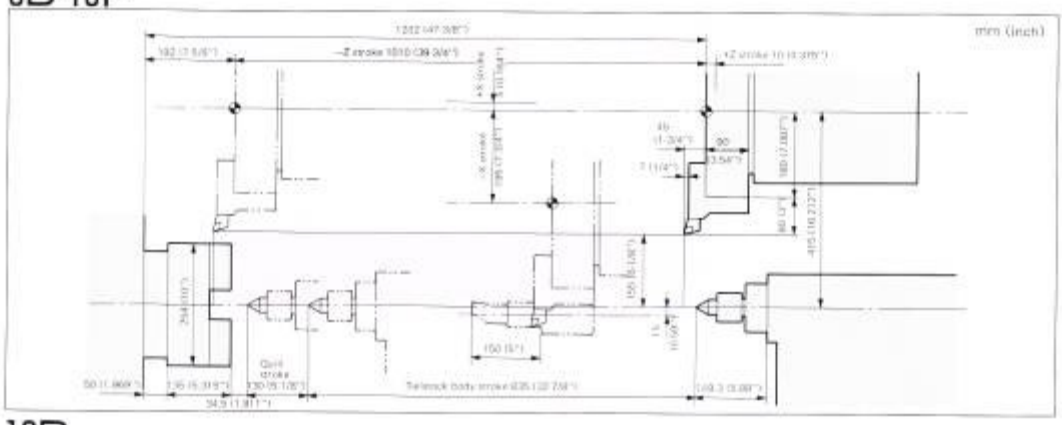


Dodecagonal drum turret. (12D)

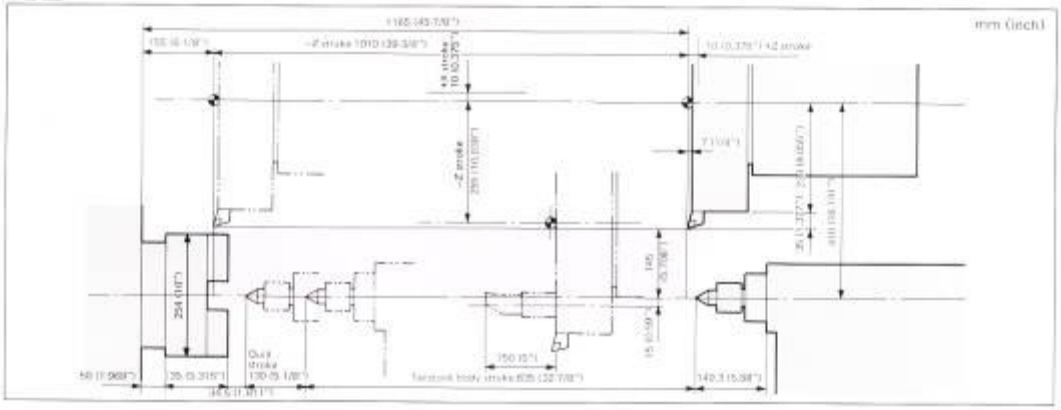


Large machining area.

8D·16P

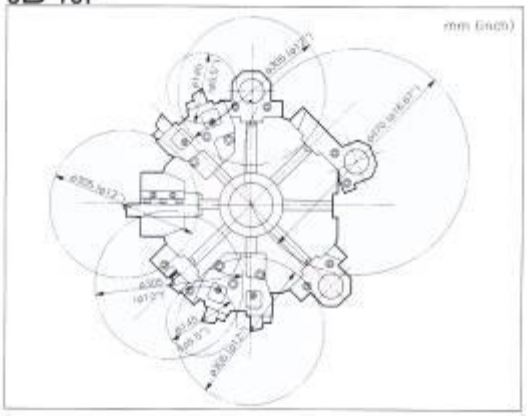


12D

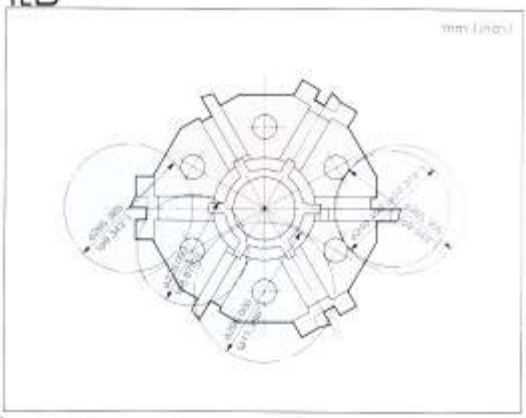


Turrets designs for minimum tool interference.

8D·16P



12D



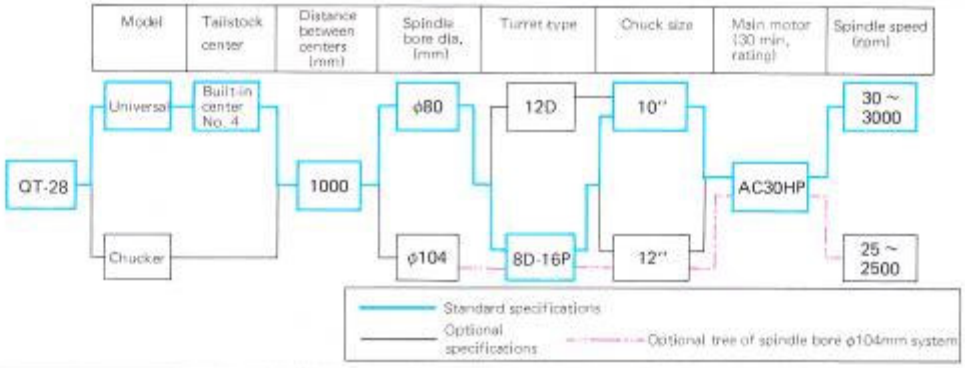
STANDARD ACCESSORIES

10" hydraulic through hole chuck (with 1 set of soft jaws)	• KITAGAWA B-10A0815+F1768H
Coolant system (with 180 W pump)	• 190 liter (50.2 gal) tank capacity (universal model)
Lighting equipment	• Disposed on machine top
Safe and clean working environment	• Front cover totally encloses machining area
Adjusting tools and one set of manuals	• Programming/operation/maintenance/parts list
Electrical spare parts	• Various fuses
Tooling package	• Differs by turret type (see page 12 for details)
Tool Eye System	• Tool setting, automatic wear compensation and automatic breakage detection are available

FACTORY AUTOMATION EQUIPMENT AND OTHER OPTIONAL ACCESSORIES

Automatic Operation	FLEX Robot System	• Please refer to Flex Robot System Catalogue for details.
	Bar Feed System	• ø64mm (ø2.52") maximum bar stock diameter.
	Auto-Parts Catcher	• Maximum workpiece size : 65mm (2.56") dia. x 100mm (3.94")
	Auto-Loading System	
	Automatic Door Open/Close	• Door automatically opened/closed by NC command
	Automatic Chuck Operation	Chuck Jaws automatically opened/closed by NC command
	Automatic Workpiece Measurement (internal)	• Automatic workpiece measurement by touch sensor mounted on turret
	Automatic Warm-up	• Performs warm-up operation according to setting of calendar/timer
	Automatic Power-off	• Electrical power is tomatically turned off at completion of machining
	Machining Completion Indicator Light	• Machining completion indicated by revolving alarm light
	Machining Completion Buzzer	• Machining completion indicated by buzzer operation
	Spindle Orientation	• Spindle positioning to a fixed point
	Chuck Air Blast	• Chips removed by air blast by NC command
	Mazak Micro-Disk	• Compact NC data storage system using 3 1/2" floppy disks
	Mazak Cam System	• NC programming system and DNC operation
	DNC Link	• For NC data transmission (cable or fiber optic)
Optional Machine Specifications	Large Spindle Bore	• A2-8 ø104mm (ø4.1")
	Turret	• Dodecagonal drum turret
	Power Chucks (10" and 12")	• Collet chucks, index chucks, and others
	Block Tooling System	• Block tool holders for 8D16P turret can mount two block tools on each holder
	Tool Holders	• Please see page 12 for details
	Quick Jaw Change Chuck	• Made by SMW, HOWA, KITAGAWA
High-Precision Machining	X-Axis linear Scale Feedback System	• Direct detection and compensation of X-axis movement (NOTE: not available with absolute positioning encoder)
	Coolant Temperature Monitor	• Minimizes workpiece thermal distortion by regulating coolant temperature
Safety Equipment	Door Interlock	• Detects if door is opened during automatic operation
	Overload detection	• Detection of spindle motor overload automatically stops spindle rotation and axis movement.
	Hydraulic Pressure Monitor	• Detects if there is abnormal drop in hydraulic pressure and stops system
Coolant System and Chip Disposal	Floor Oil Pan	• Placed underneath machine
	High-Power Coolant System (750 W)	• Recommended for use with U drills, etc.
	Chip Conveyer	• Rear or side discharge chute
	Chip Bucket	• Fixed or pivoting type

QUICK TURN 28 MACHINE SPECIFICATIONS



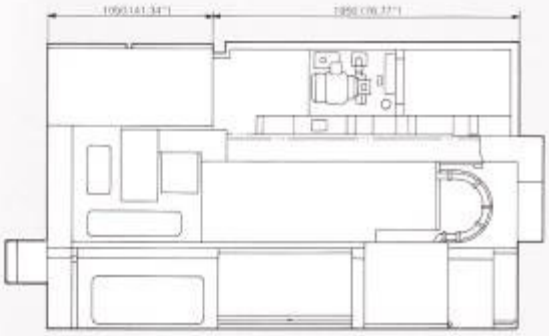
Turret type	•	8D 16P	•	12D
Max. swing	•	ϕ510mm (ϕ20.1")		
Max. machining dia.	•	ϕ320mm (ϕ12.6")	•	ϕ310mm (ϕ12.2")
Max. machining length	•	1010mm (39.8")		
Turret travel range X axis	•	200mm (7.9")	•	265mm (10.4")
Z axis	•	1020mm (40.1")		
Rapid traverse rate	•	X axis 12m/min. (472 IPM), Z axis 24m/min. (945 IPM)		
Turret indexing time (1 step/full step)	•	0.6 sec/1.8 sec.	•	0.65 sec/2.9 sec
Tailstock type	•	Automatic NC tailstock		
Tailstock quill	•	130mm (5.1")/835mm (32.9")		
Main motor (continious/30min. rating)	•	AC 26HP (19.5 kW)/AC 30 HP (22 kW)		
Total power requirement	•	41 KVA		
Machine weight	•	5500 kg (11700 lbs)		
Machine size (L x W x H)	•	3235mm x 1762mm x 1825mm (127.4" x 69.4" x 71.9")		
CNC	•	MAZATROL CAM T-2 (FANUC 10T optional)		

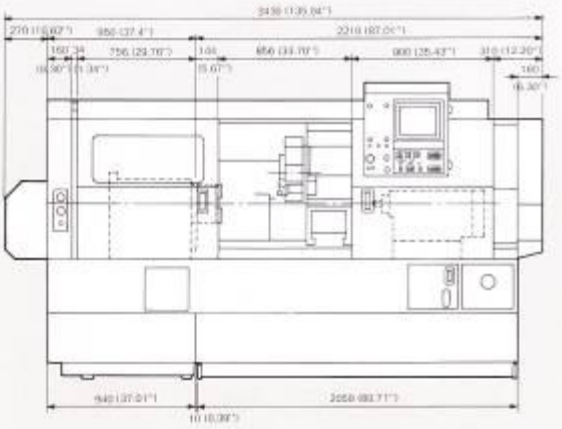
MAZATROL CAM T-2 CNC SPECIFICATIONS

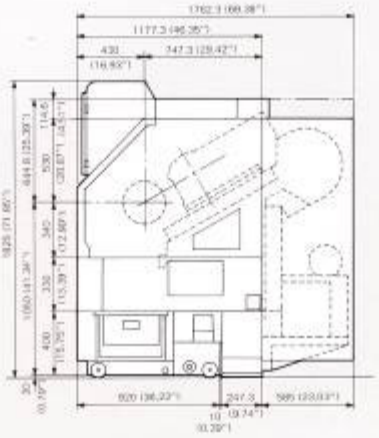
Program language	•	MAZATROL
No. of controlled axis	•	2-axis (X, Z), simultaneous 2-axis
Control system	•	Positioning, linear and circular interpolation
Command system	•	Absolute (manual program mode: absolute/incremental)
Least input increment	•	X, Z-axis 0.001mm [0.0001 inches] (X-axis dia.)
Max. programmable dimension	•	X, Z-axis 9999.999mm [999.9999 inches]
Memory capacity	•	Max. memory lines: 500, Max. program storage: 16
Automatic programming	•	By type of material, cutting conditions determination, tool paths, etc.
Automatic program checking	•	Program contour check (while programming), Tool path check, Tracing, Arbitrary display scale
Coordinate system selection	•	Tool tip memory, Z-axis offset
Tool offsets	•	Tool wear compensation, two sets for each tool
Machining process sequence editing	•	Program priority, rough machining priority, random
Tool offset function	•	Tool nose radius, Tool tip shape
Background programming	•	Simultaneous machining and programming
Simulation	•	Machining simulation CRT display
EIA/ISO code input (optional)	•	EIA RS244A of ISO 840 (auto-switching)
Absolute positioning detection (optional)	•	Absolute position detection method (Home return operation is unnecessary)

Floor space

mm (inch)







*Specifications, pictures, etc. are subject to change without notice.

Mazak

YAMAZAKI MAZAK CORPORATION
1 NORIFUNE, OGUCHI-CHO, NIWA-GUN, AICHI PREF., JAPAN
PHONE: OGUCHI (0587) 95-1131 TELEX: J 59777
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MAZAK CORPORATION
MAZAK SALES & SERVICE INC.
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YAMAZAKI MACHINERY EUROPE N.V.
RESEARCH PARK GRAUWMEER 7, 3000 LEUVEN, BELGIUM
PHONE: (016) 205811 TELEX: 62552 MAZAK B

YAMAZAKI MACHINERY DEUTSCHLAND GMBH
ESSLINGENSTRASSE 4, 7320 GÖPPINGEN, DEUTSCHLAND
PHONE: 07161 680576 TELEX: 727653

YAMAZAKI MACHINERY U.K. LTD.
BADGEWORTH DRIVE
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