Mazak

Your Partner for Innovation

SUPER TURBO-X Mk III RTC 10.10.5000 S 99J425710E0 EE

SUPER TURBO-X Mk III RTC

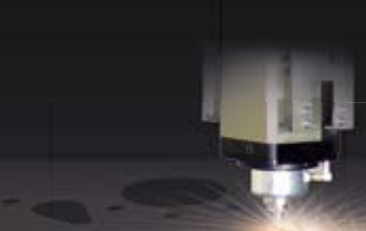
Perform laser cutting of thin to thick sheets, 3 dimensional shapes and even tapping / chamfering by just one machine.

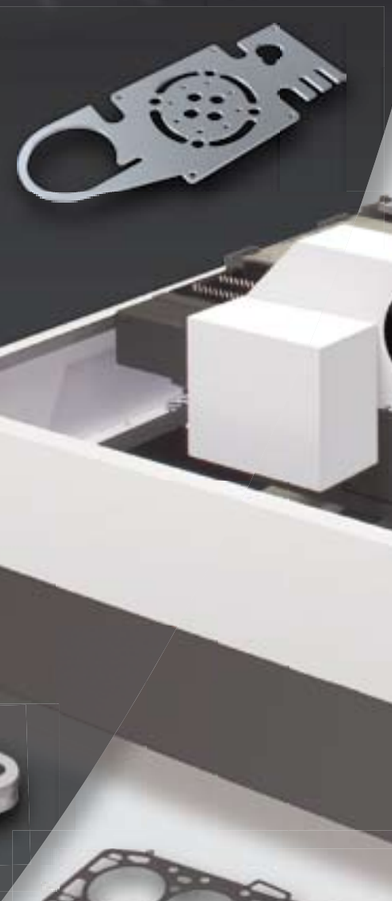
- Tapping / chamfering unit is standard equipment for both 2D flat sheet & pipe applications.
- Long Z-axis stroke allows the cutting of cubic components as well as tapping holes on the top surface.
- Automation equipment such as the automatic nozzle changer and automatic focal point adjustment are standard equipment to reduce setup time and piercing time for higher productivity.
- Incorporates unique Mazak features such as non-stop cutting and constant beam length delivery system.
- Rotary chuck is standard equipment for the cutting of pipe, tubing and structural material.

R*otary Chuck*

T*apping*

C*hamfering*



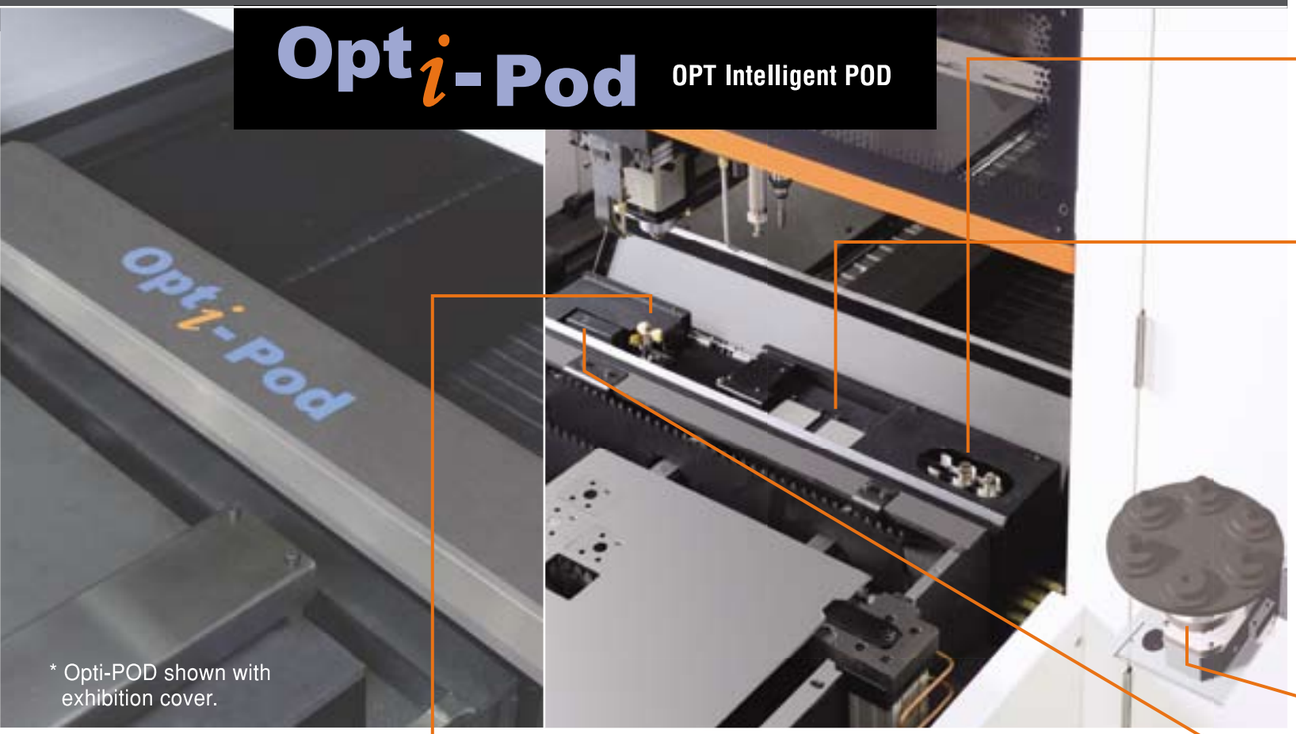


Shown without standard open/close protective cover for clarity

SUPER TURBO-X Mk III RTC

Automation for reduced setup time

Preventive functions avoid unexpected machine downtime, reduction of time-consuming preparation and setup changes, extended unmanned operation time- all contribute to considerably higher productivity



* Opti-POD shown with exhibition cover.

Nozzle Spatter Removal System

Spatter that adheres to the nozzle is periodically removed by the grinder head and wire brush by NC program command.
As a result, cutting failure due to nozzle problems is eliminated.

STD | PAT. PEND.

Nozzle Changer

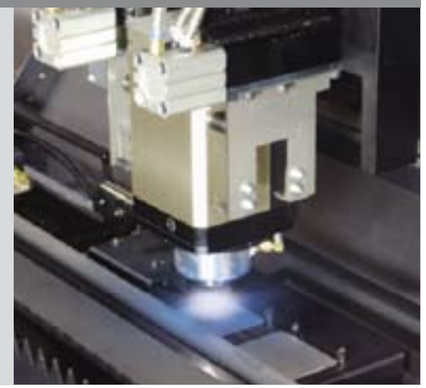
Nozzle changes can be done automatically within the program.
Automatically change to optimum or spare nozzle for continuous unmanned operation.
Storage capacity : 3 nozzles

STD | PAT. PEND.

Auto Focal Distance Measurement & Adjustment

Traditionally focal distance measurement and adjustment requires a skilled and experienced operator and setup time. Even unskilled or inexperienced operators can do these operations easily by using intelligent auto focal distance measurement & adjustment system automatically by programmable commands. Also, this system automatically compensates the focal distance changes which occur due to lens contamination.

STD | PAT. PEND.



Tap Magazine

The tap magazine can store a maximum of 6 taps. Changing taps is automatically performed by program command.

STD

Tap Breakage Detection

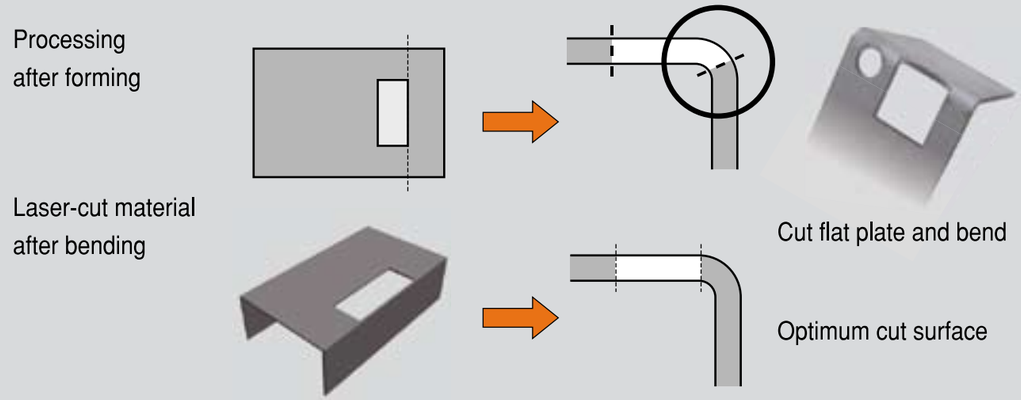
To assist tapping operation, the SUPER TURBO-X Mk III RTC automatically checks for tool breakage by program command.

STD

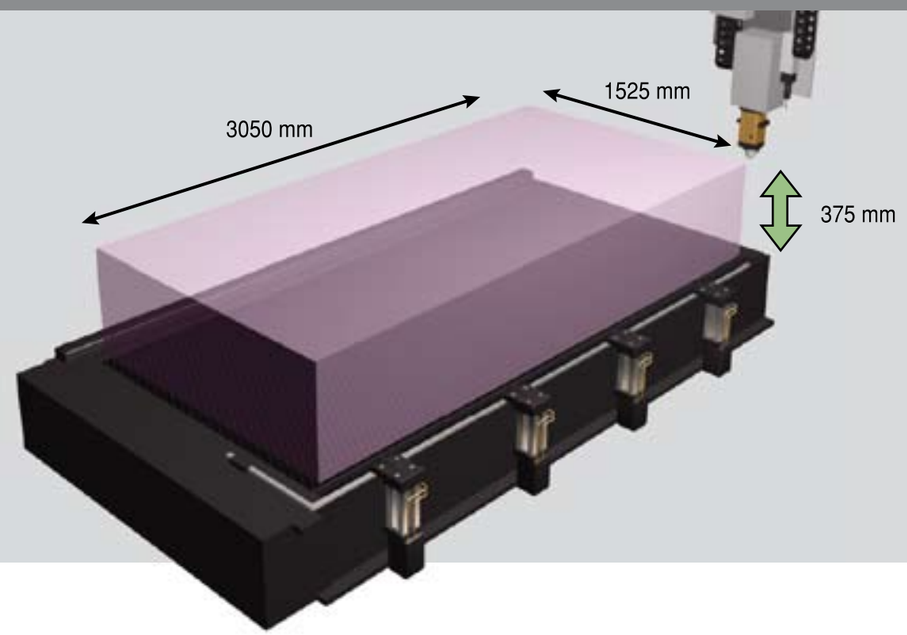
SUPER TURBO-X Mk III RTC – provides a wide variety of processing capabilities

Longest Z-axis stroke for 2D laser machines for the cutting of structural components as well as tapping holes on top surface

Easily cut components after bending



Up to 3050 mm × 1525 mm × 375 mm cubic material can be loaded on table



Pipe processing with Rotary Chuck

Large bore through-hole chuck - standard equipment. Pipe processing up to Ø 375 mm .

When changing cutting from flat worksheets to pipe processing, the cutting torch is changed

The Mazak SUPER TURBO-X Mk III RTC considerably reduces in-process time thanks to high accuracy laser cutting of pipe material which in many cases allows welding to be performed without special fixtures.

Slider base for mounting support attachments reduce setup time

Option

Cutting Diameter range
Ø 20 ～ 220 mm

TYPE A

Through hole type pipe support for to ensure high accuracy laser cutting. The disc used for support can be cut from a worksheet according to the material size and shape.

TYPE B

Supports pipe from the bottom. Easy to load material and convenient to unload cut off work piece. The plate used for support can be cut from a worksheet according to the material size and shape.

Knife edge supports do not have to be removed to mount the standard fixture plate sliding base for pipe processing.

FIXTURE PLATE FOR DIA.
220 mm × 3000 mm

Option

By removing knife edge supports,
Ø 200 ～ 375 mm
pipe can be processed.

CAM Software for simplified programming

STD

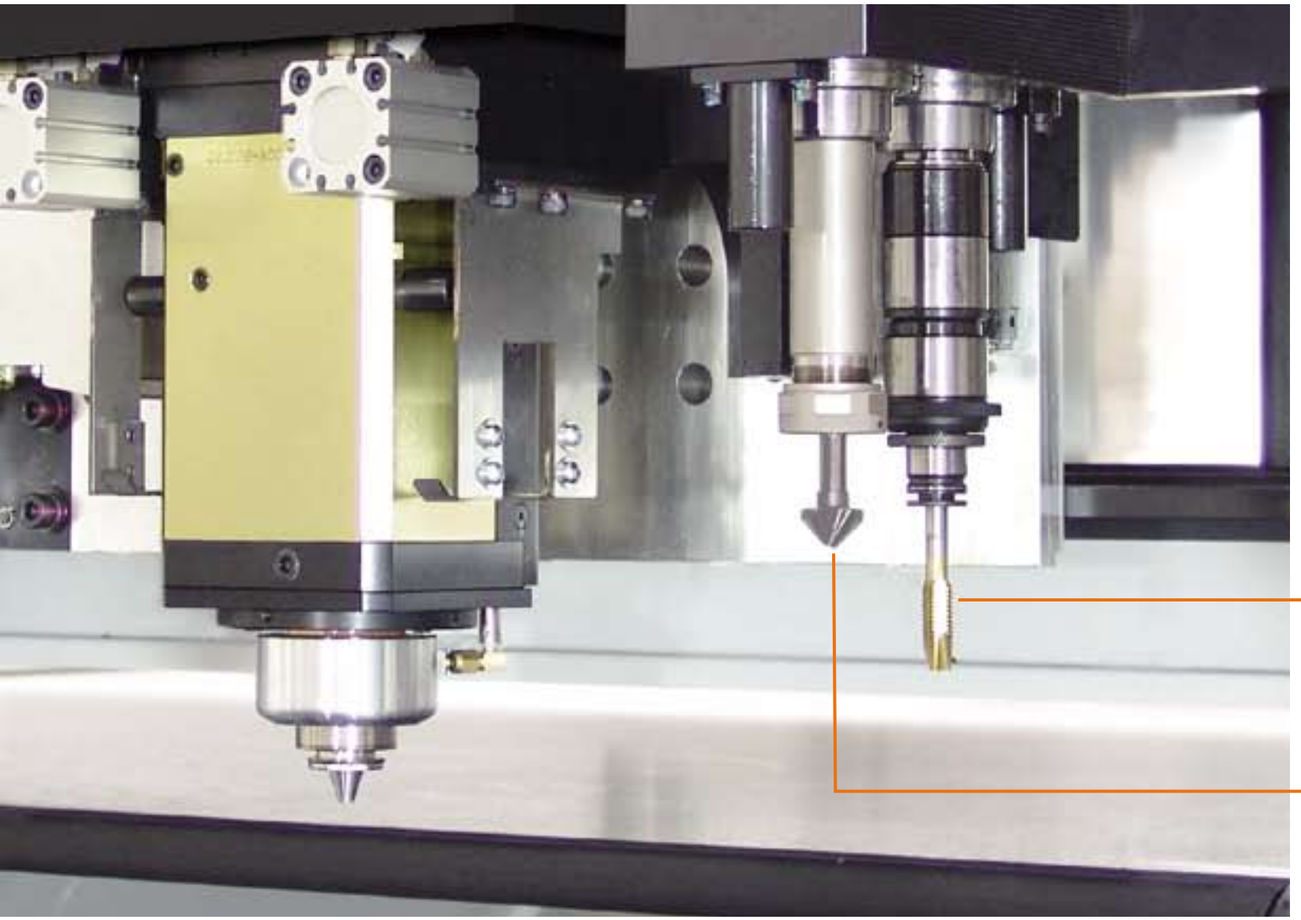
CAM software for the programming of laser processing is included with the SUPER TURBO-X Mk III RTC.

This software features conversational programming and operates on a Windows personal computer (Windows XP or newer operating system).

Normally, the programming of intersecting hole geometry for pipe joints is extremely complicated requiring considerable time and expertise. This software makes it possible for the processing of complex features to be easily programmed.

Done in One – Laser processing, Tapping and Chamfering

The SUPER TURBO-X Mk III RTC has a tapping unit and chamfering unit as standard equipment for tapping, chamfering after performing laser cutting.

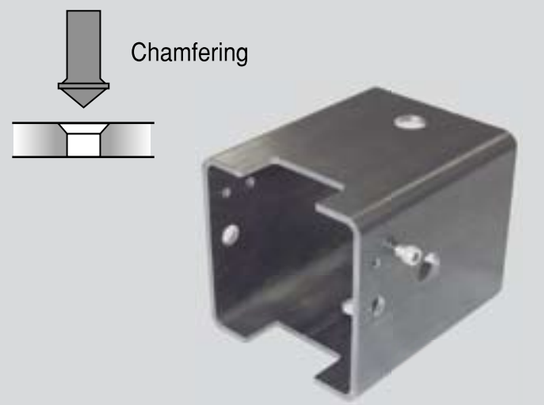


Tapped hole cannot be located directly on knife edge

Tapping

Tapping Capability
M3, M4, M5, M6, M8, M10

Chamfering



Considerable time reduction for cutting medium-to thick sheets

New Programmable Focal Point Positioning PAT. PEND.

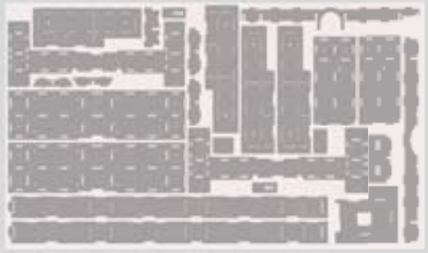
The new servo system automatically sets the optimum focal point by program command.

Programmable focal point positioning considerably reduces piercing time

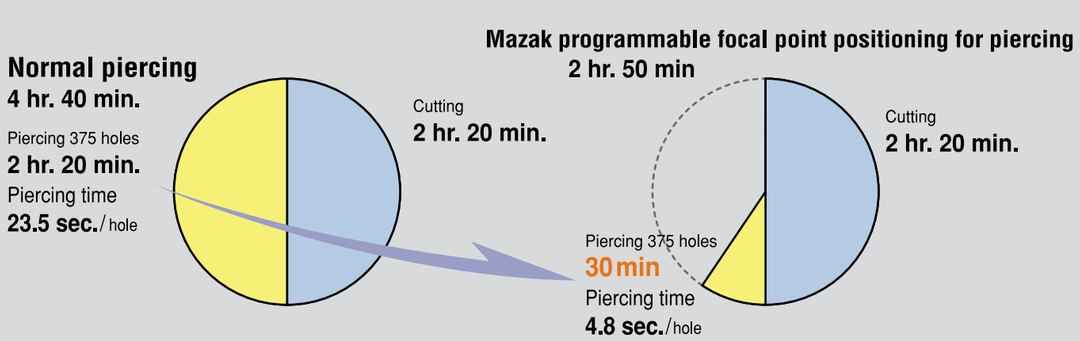
Thanks to the servo positioning system, piercing time is reduced to provide higher productivity.

STD
PAT. PEND.

Time comparison - previous piercing setup and programmable focal point positioning for piercing



Material：Mild steel
Size：3000×1500 mm
Thickness：16 mm
Assist gas: Oxygen
Piercing: 375 holes



Mazak High Accuracy Auto Centering Lens
Mazak High Accuracy Auto Centering Nozzle

Focal point adjustment and nozzle centering are no longer required – resulting in higher productivity. These units are machined with high precision and are self-centered once they are mounted on the torch.

STD

Monitoring System maintains optimum processing

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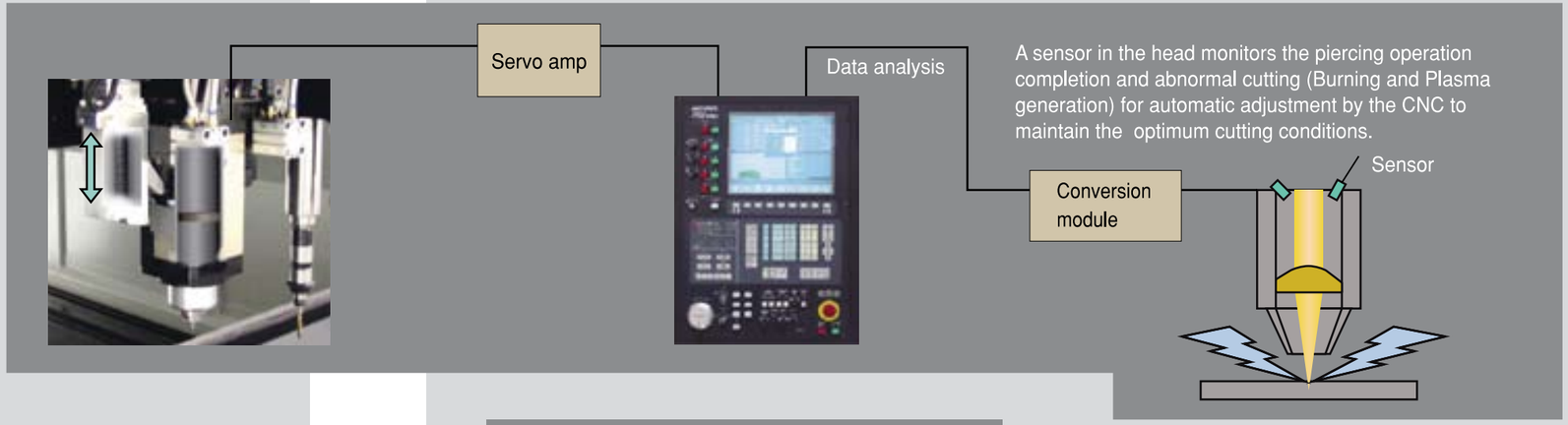
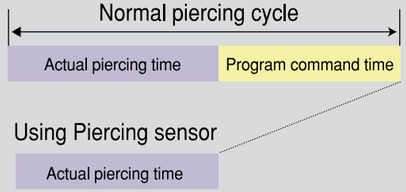


Reduced time required for piercing

Piercing Sensor

Normally, it is quite difficult to stabilize piercing operations for medium / thick worksheets resulting in piercing problems. The Intelligent piercing sensor detects when the laser beam pierces the material and completes hole piercing. This function ensures continuous piercing operation resulting in the minimum piercing time.



Cutting Failure Prevention

Burning Sensor

Normally burning generated during the cutting of medium/ thick mild steel worksheets often results in cutting failure which stops machine operation. The burning sensor monitors for abnormal burning during processing and automatically stops cutting if any is detected.

Plasma Sensor

Plasma generated during cutting of medium/thick stainless steel worksheets frequently results in cutting failure that stops machine operation. The Intelligent plasma sensor monitors plasma generation during processing and makes automatic adjustments to maintain optimum conditions for consistent cutting quality.

Burning

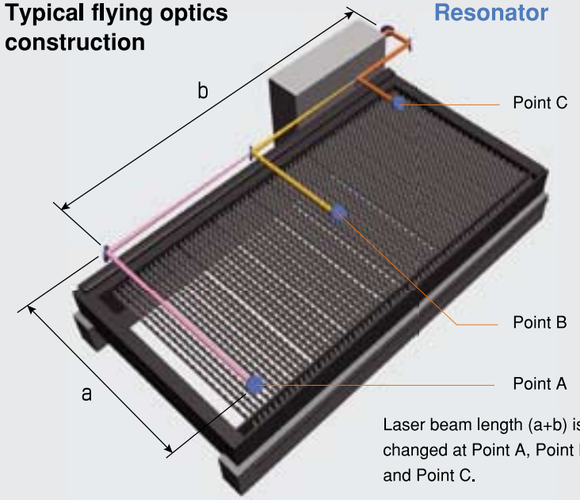
Plasma

Exclusive constant-beam length system, Mazak's unique technology, ensures uniform high accuracy cutting anywhere on machine table

Highly rigid table and constant beam delivery system provides optimum and stable high accuracy cutting at all points on the table PAT. PEND.

The laser beam is directed from the laser resonator to the cutting torch using Mazak's exclusive constant-beam length delivery system. Stable production is realized thanks to the constant-beam length that provides uniform cutting performance anywhere on the table. Additionally, the high rigidity table and the laser resonator integrated into the machine base ensure stable, high accuracy cutting.

Typical flying optics construction

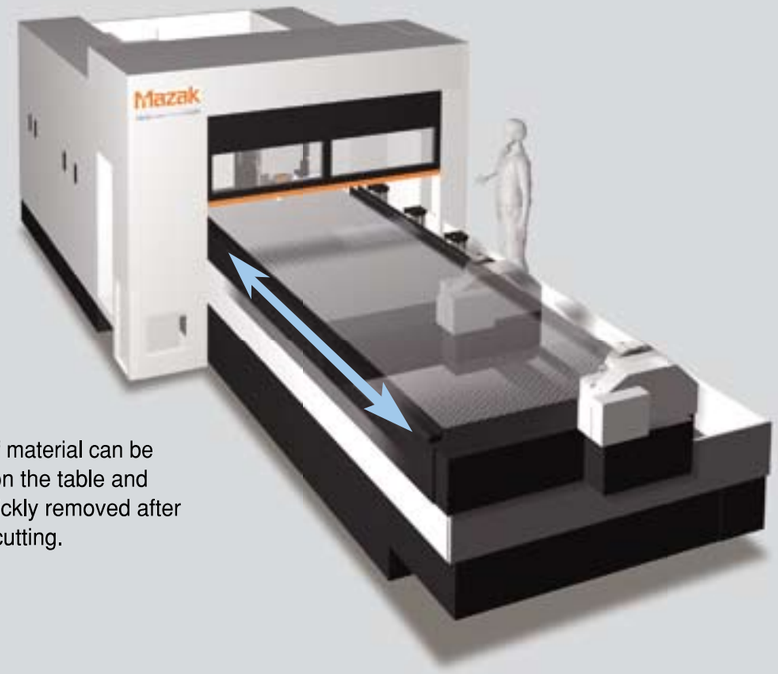


Laser beam length (a+b) is changed at Point A, Point B and Point C.

Generally, flying optics construction has the issue that the laser beam quality is not stable when the laser delivery distance changes. As a result, cutting performance is not the same at different table locations. The long-standing challenge for laser processing machine manufacturers is to maintain a constant beam delivery length. Even today, many manufacturers have been developing various technologies to solve this problem.
The Mazak constant beam delivery system eliminates this problem by not changing the beam length. This system does not use special optical components. It realizes stable laser beam delivery length as well as reduced operation cost thanks to easy maintenance.

Table feed system – designed for excellent table access, ease of operation, and convenient processing of a wide variety of workpieces in small size lots

Continuing the SUPER TURBO-X series' ease of operation



Small pieces of material can be easily loaded on the table and workpieces quickly removed after completion of cutting.

Work Lifter for Convenient Material Positioning – Standard Equipment

Even heavy material can be easily moved and positioned.
Additionally, marring of the back surface of materials such as stainless steel is minimized.

Machine Specifications

Machine Specifications

			SUPER TURBO-X 510 Mk Ⅲ RTC
Maximum cutting size		●	1525 mm × 3050 mm
Workpiece table height		●	900 mm
Axis motion stroke	(X-axis)	●	3260 mm
	(Y-axis)	●	1545 mm
	(Z-axis)	●	430 mm*1
Rapid traverse		●	X,Y : 24 m/min
		●	Z : 25 m/min
Max. cutting feedrate		●	24 m/min
Positioning accuracy		●	± 0.01 mm / 500 mm (X,Y-axis)
		●	± 0.01 mm / 100 mm (Z-axis)
Repeatability		●	±0.005 mm (X,Y,Z-axis)
Machine weight		●	12900 kg
Equivalent continuous sound Pressure level at operator position (dependant on equipment options) *		●	Less than 80 dB

* The accuracy data and other data presented in publication were obtained under specific conditions and cannot be guaranteed to be repeated under different conditions (room temperature, workpiece material, tool material, cutting conditions, etc)
*1 Max. Z-Axis stroke 375 mm when machine is equipped with the optional Class One Cover.

Laser Oscillator Specifications

Resonator type	●	1.8 kW, 2.5 kW, 4.0 kW
Laser gases	●	Mixed He, N_2, CO_2
Gas consumption rate	●	30 L/h

Rotary Chuck Specifications

Chuck	●	Manual scroll chuck with four jaws
Chucking material diameter	●	ø 20 ~ 375 mm
Chuck bore	●	ø 152.4 mm
Min. workpiece length	●	170 mm
Max. workpiece length	●	3200 mm
Max. cutting workpiece length	●	3000 mm
Material shapes	●	Round pipe, Square pipe

CNC Standard Specifications

Name	●	MAZATROL PREVIEW M
CPU	●	64 bit
Control method	●	Preview control
Minimum program increment unit	●	0.001 mm
Programming method	●	EIA/ISO
Display	●	15" color LCD (TFT)

Tap Specifications

Tap magazine	●	Max. 6 tools
Tap change	●	Automatic
Tap spindle speed (RPM)	●	1500
Tap size	●	M3, M4, M5, M6, M8, M10

Tapping capability will vary by type of workpiece material

Auto nozzle changer

- Magazine capacity : Three nozzles

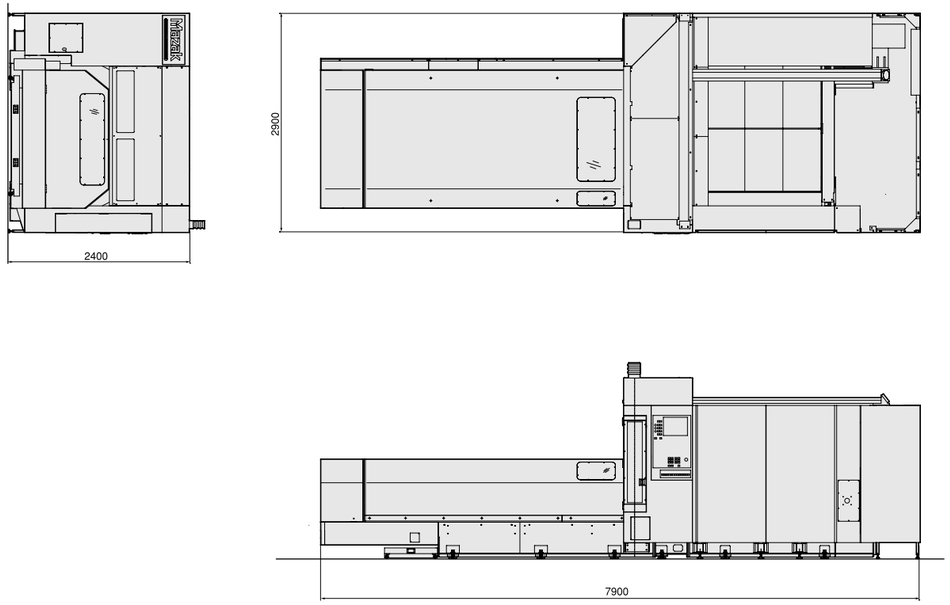
Standard Equipment

- Programmable Focus Positioning (Servo Focus)
- Auto Nozzle Changer (OptiPOD)
- Focal Point Adjusting Function (OptiPOD)
- Auto Profiler Function (OptiPOD)
- Nozzle Spatter Removal system (OptiPOD)
- Tap breakage detection (OptiPOD)
- Monitoring system
- Work Lifter
- Preparation for mounting dust collector
- Assist gas pressure controlled by NC
- Rotary chuck
- Assist gas switching device
- Chamfering Unit
- Tap Magazine
- 3D torch (Pipe processing torch)
- Scrap conveyor
- Automatic Workpiece Clamps & Locator
- Profiling Retry
- High- pressure gas piping
- Pipe CAM
- Open/close protective cover

Optional Equipment

- Dust collector
- High-pressure air supply unit
- Auto power off
- Pipe Support Type A
- Pipe Support Type B
- FMS Loader Clamp
- NC retry
- Slider Base For Pipe support
  DIA. 220 mm × 3000 mm

MACHINE DIMENSIONS



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SUPER TURBO-X 510 MkⅢRTC

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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, cutting conditions, etc.)

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