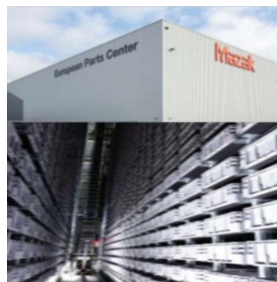




1.0 Mazak Overview



Yamazaki Mazak Minokamo 1 Plant
in Gifu-Prefecture, Japan.



THE GLOBAL STRENGTH OF YAMAZAKI MAZAK

Yamazaki Mazak is the world's largest manufacturer of machine tools. We produce systems for the precision manufacturing of metal parts including laser-cutting machines, CNC turning centers, horizontal and vertical machining centers, multi-tasking machining centers, turnkey cells and software solutions to help customers achieve lean, efficient manufacturing operations. We have developed unique products that realize unsurpassed productivity and established 80 Technology and Technical Centers all over the world to provide total solutions and optimum service support close to our customers.

MAZAK LASER TECHNOLOGY

Mazak Laser offers an extensive range of 2D and 3D laser-cutting equipment encompassing over 50 machine models. This innovative range of products enables Mazak to better meet your specific laser application needs. Mazak is a laser technology leader who can significantly improve production efficiency, competitive positioning and profitability. We utilize innovative engineering and intelligent automation to simplify operation and deliver more consistent machine performance.

MAZAK SUPPORT IN EUROPE

Mazak Laser Technology Center supporting our customers in over 30 countries. Our commitment to your continued productivity doesn't end with purchasing your Mazak machine. At Mazak, our extensive service network provides you with our expertise, whenever and wherever you need us.

MAZAK EUROPEAN PARTS CENTRE

Located in Belgium, the European Parts Centre has warehouse capacity of 4,600m² and is capable of shipping 97% of Mazak parts on the same day. The new facility can ship over 20,000 parts per month with orders being processed 365 days a year. The state-of-the-art warehouse is fully automated and equipped with a new "mini-load" system for small parts picking from 8,000 small trays, travelling from 70,000 locations within the warehouse, and a stacker crane system for 3,000 medium to large pallets.



2.0 System Summary



Mazak has engineered exclusive Intelligent Multi-Control Torch 2.1 technology that improves reliability, achieves high performance and enables advanced Intelligent Functions not available on many competitive models.



OPTION - Intelligent Setup Functions like the nozzle changing system shown above help reduce operator errors, improve consistency of operation and lower operator dependency.

OPTIPLEX NEXUS FIBER

Optiplex Nexus Fiber series machines deliver intelligent performance for maximum productivity.

OPTIPLEX NEXUS Fiber series utilizes a flying optics, 2 pallet changer design and a helical rack and pinion positioning system that features high cutting speeds, maximum throughput and rugged construction.

- Designed to integrate Intelligent Setup and Monitoring Functions, the OPTIPLEX NEXUS FIBER delivers superior performance. It incorporates Intelligent Multi-Control Torch 2.1 and Nozzle Changer technology to directly increase the productivity of the end user by allowing the machine to optimize the torch setup automatically per program. This optimization can dramatically improve cut speeds, increase throughput and require less operator intervention, delivering more predictable processing day after day.
- The OPTIPLEX NEXUS FIBER has been engineered to be utilized with Mazak's extensive range of automated material handling systems.
- The new cutting-edge PreviewGcontrol with 15" touch screen includes integrated tech tables that simplify operation.
- The sliding door along the X-axis gives excellent accessibility to the working area for maximum flexibility in the small lots job.
- OPTIPLEX NEXUS Fiber is available in 2.0kW, 3.0kW, 4.0kW and 6.0kW Laser resonator configurations





3.0 Intelligent Functions



Auto Focus Positioning eliminates the need to have the operator measure, adjust, and set the focal distance by automating the process.



Pierce Detection senses when the pierce breaks through the material as compared to a programmed pierce that would include added time to account for variations in the process.



Plasma Detection monitors plasma generation while cutting medium/thick stainless steel and automatically adjusts cut conditions to help avoid quality issues and cut failure.

INTELLIGENT FUNCTIONS IMPROVE EASE OF OPERATION & MACHINE EFFICIENCY

Mazak has developed a series of Intelligent Functions designed to automate machine setup and monitor the cutting performance. These Functions can dramatically simplify operations and automatically adjust cutting parameters to increase the quality of parts and overall throughput.

Intelligent Setup Functions

A wide variety of Functions are available for ease of operation and reduced setup time.

	Auto Nozzle Changing - OPTION Optimizes assist gas usage and maximizes the feedrate for each job (8 nozzles)
	Auto Focus Positioning. Maximizes part quality and produces maximum feedrate
	Focus Detection - OPTION Automatically calibrates reference position
	Auto Profiler Calibration. Keeps a stable distance between material and nozzle during cutting operation
	Auto Nozzle Cleaning. Increases the time between necessary operator intervention
	Beam Diameter Control. Stable cutting is realized – improved cutting speed for thin worksheets and increased cutting performance for thick sheets

Intelligent Monitoring Functions - OPTION

OPTIPLEX NEXUS Fiber is equipped with sensors in the Multi-Control Torch 2.1 that monitor piercing and cutting operations to improve throughput and part quality. If an anomaly is detected, the operation is adjusted or paused to automatically achieve effective cutting conditions.

	Pierce Detection. Minimizes pierce times for greater throughput
	Plasma Detection. Monitors and helps stabilize stainless steel cutting, reducing dross
	Burn Detection. Monitors cutting and notifies you of bad cut conditions in mild steel



Intelligent Cutting Functions

Automatic functions incorporating Mazak's expertise accumulated over many years that ensure high quality and high efficiency laser cutting. The OPTIPLEX NEXUS Fiber series is equipped with the following INTELLIGENT CUTTING FUNCTIONS:

	Fine Power Ramping. It controls acceleration and/or deceleration speed automatically, not dropping speed too much to avoid dross.
	Flash Cut. Monitors and helps stabilize stainless steel cutting, reducing dross

Maximum cutting thickness

Material / Power	6kW
Mild steel, O ²	25mm
Mild steel, N ²	6mm
Stainless steel, N ²	20mm
Aluminum, N ²	20mm
Copper, O ²	12mm
Brass, N ²	12mm



4.0 Standard Features

MACHINE FRAME

The OPTIPLEX NEXUS Fiber laser machine frame starts with a solid cast iron precision-machined base for accuracy, system repeatability and durability. The cast iron base supports the motion drive system, electrical systems and CNC. Ergonomically designed with sliding access doors along the X-axis, the work zone is easily accessible. The solid cast design does not require the main machine frame to be secured to the facility foundation.

MOTION SYSTEM

The motion drive system utilizes high-speed direct drive helical rack and pinion motors for X1 – X2 & Y axis. The ridged bridge gantry design uses precision guided ways on X & Y. The Z axis is a digital servo drive system.

CONTROL UNIT

The OPTIPLEX NEXUS Fiber features the cutting-edge MAZATROL PREVIEWG Control Unit that utilizes a 15 inch touch screen which reduces the number of hard buttons. The Mazak PREVIEWG interface displays in both 2D & 3D Color graphics for process monitoring. The touch screen monitor allows for fast and easy access to all Intelligent Monitoring Functions and Intelligent Setup Functions. The ergonomic design allows for adjustable height and rotation.



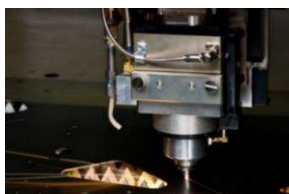
The PreviewG Control is Mazak's newest design created to simplify operation and enable cutting-edge performance from your new machine.

FIBER LASER RESONATOR AND FIBER OPTIC DELIVERY SYSTEM

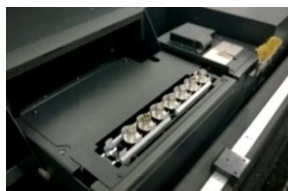
The new Solid State Ytterbium Laser utilizes advanced diode pumped technology which provides high quality laser power with extended operational life. This solid state Laser operates with 40% less electricity as a result of greater efficiency levels of excitation. This technology provides maintenance free operation yielding dramatically reduced cost of operation. The laser beam is delivered to the Mazak Multi-Function Torch. Mazak optimizes Fiber Technology by integrating the Solid State Fiber Resonator with the Mazak PREVIEWG Controller, Mazak Multi-Control Torch 2.1 and Mazak Intelligent Monitoring and Setup features. This combination of technology sets Mazak Optiplex Nexus Fiber apart from all other systems.



Fiber Solid State Laser Generator is available in 2.0kW, 3.0Kw and 4.0kW configurations on OPTIPLEX NEXUS Fiber



Mazak's exclusive Multi-Control Torch 2.1 is the key feature that enables a host of automated Intelligent Functions.



The OPTIPOD houses the automatic nozzle changer and other features utilized for Intelligent Setup Functions.



Integrated cutting technology is resident on the PreviewGControl and provides cutting parameters that help streamline machine operation.



OPTIPLEX NEXUS FIBER features an Automatic 2 Pallet Changer to help facilitate work piece loading/unloading while the machine continues to process work.

MAZAK MULTI-CONTROL TORCH 2.1

Mazak's exclusive Multi-Control Torch 2.1 was a key development that enables Mazak's Intelligent Setup and Intelligent Monitoring Functions. They directly increase the productivity of the end user by allowing the machine to optimize the torch setup automatically per program. This optimization can dramatically improve cut speeds, increase throughput and requires less operator intervention, delivering more predictable processing day after day. The combination of Fiber beam diameter and focus control provides a wide range of improved cut performance in all material types and thicknesses. The eight-position nozzle changer facilitates unattended operation while ensuring the proper cut quality and maintaining the lowest possible gas consumption.

OPTIPOD

The OPTIPOD incorporates components utilized for the Intelligent Setup Functions including Auto Nozzle Changing (OPTION), Auto Focus Position, Focus Detection (OPTION), Auto Profiler Calibration and Auto Nozzle Cleaning.

INTEGRATED CUTTING TECHNOLOGY

A cutting technology chart is inside the CNC to simplify the selection of cut parameters. You just input material and thickness, and you automatically get the best cutting condition such as laser power, frequency, gas pressure etc. Difficult piercing techniques or trace calibration ON/OFF is also automatically set.

HIGH SPEED AUTOMATIC 2 PALLET CHANGER

The Automatic 2 Pallet Changer allows for a new sheeted pallet to be exchanged with the finished sheeted pallet facilitating material loading and unloading during machine cycle time.



Four manual buckets on wheels collect scrap material that drops through the table slats.

MANUAL SCRAP BUCKETS

Mazak Optiplex Nexus utilizes four Scrap Buckets incorporated into the machine base. The work zone below the pallet shuttle table is tapered to help guide scrap material into the Scrap Buckets. The Scrap Buckets are on rollers for easy handling.

CHILLER UNIT

All necessary chilling equipment is included as parts of the standard package. Necessary hoses are included in standard length of 6 meters.

ADDITIONAL STANDARD FEATURES

- Machining nozzle ($\phi 1.2$ [0.047], $\phi 2.0$ [0.079], and $\phi 3.0$ [0.118] (mm [in]) 1 for each)
- Nozzle adapters 5 (Universal can be used with all nozzle diameters)
- Work piece Laser Edge Detection & coordinate rotational function
- USB port for personal computer
- LAN connection function for external communications
- Automatic power cutoff
- Assist gas pressure NC function (set pressure: 0.02 to 2.5 MPa)
- Assist gas changer
- Side air blast
- Power transformer (Multi-tap transformer 380V to 480V)
- Slat table (100 mm [1.97 in] pitch)
- Manual worksheet clamp (2 pieces \times 2 pallets)
- Foundation materials (Leveling plates and pallet shuttle anchors)



A set of 3 machining nozzles are included with your machine purchase.



Slat table shown with 2 manual worksheet clamps.



An Operator Manual is provided on CD with your OPTIPLEX NEXUS Fiber purchase.

- **Protective Window Lens cleaning set**
- **Adjusting tools**
- **Relocation detector**
- **Lighting unit**
- **Oscillator indicator lamps**
- **Manuals on Compact Disc (CD)**
- **MAZAK Standard Color Frost White & Silky Black**



5.0 Standard Technical Specification

Machine Specifications

Axis processing movement	Stationary table with X-Y-Z Movement (Flying Optics)
Maximum work piece size X-Y	1525 mm x 3050 mm
Work table height	900 mm
Axis travel X-Y	1580 mm x 3100 mm
Z axis travel	150 mm
Rapid traverse rate X-Y	60 m/min
Rapid traverse rate Z	60 m/min
Design	Bridge Gantry Style
Axis drive system X1/X2 - Y	Helical rack & pinion
Axis drive system Z	Belt drive
Positional accuracy X-Y	+/- 0.05 / 500 mm
Positional accuracy Z	+/- 0.01 / 100 mm
Repeatability X-Y-Z	+/- 0,03 mm
Cutting head	Mazak Multi-Control Torch
Z axis profiler	Non-contact type/ Z-axis follow type
Lighting system	LED light
System weight	
12500 kg (2.0kW)	
12800 kg (3.0kW)	
12850 kg (4.0kW)	

Control Specifications

Name	MAZATROL PREVIEWG
CPU	64 bit
Data input	Touch Screen
Monitor	19" XGA Color TFT

Pallet Specifications

Maximum work piece weight per pallet	930 kg
Maximum work piece size X-Y	1525 mm x 3050 mm



6.0 Machine and Options Prices

MODEL

6000W

OPTIPLEX NEXUS 3015 FIBER
Resonator IPG YLS-6000 U and chiller

GENERAL MACHINE OPTIONS

AS662	Auto nozzle changer (8 tools)
SD118	Intelligent monitoring and focus detection
AS685	Nozzle cooling function
PLLO007	Donaldson exhauster DFPRO-4 Spark
LN614	Additional protective window cartridge
AS686	Integrated nozzle camera
RB165	Workpiece lifter



NO059	MT connect adaptor
TL322	4 th gas supplying
CI001	Set of manuals
CI002	Transport
CI003	Installation and training

Total : € 235 000



Machine History and Reference Photos:

Year of Manufacture: 2022 (**installation 29.12.2022**)

Condition: Very good (used)

Operating Hours: approx. – the machine is in continuous operation

LASER POWER ON TIME: 2,900 hours

Functionality: Fully functional











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