

# Mazak

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INTEGREX j SERIES SmoothG 17.05 0 GH 99J1A2317E0

## INTEGREX J SERIES



200

200S

300

400

**SMOOTH**  
TECHNOLOGY

# INTEGREX J

## SERIES

# Mazak

## Advanced features of the MAZATROL SmoothG CNC

Touch screen operation—Operate similar to your smart phone / tablet

PC with Windows® 8 embedded OS

Fastest CNC in the world—Latest hardware and software for unprecedented speed and precision

Easy conversational programming of multiple surface machining

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

Fine tuning functions—Easily configure machine parameters for different workpiece materials and application requirements

MTConnect® ready—Convenient networking

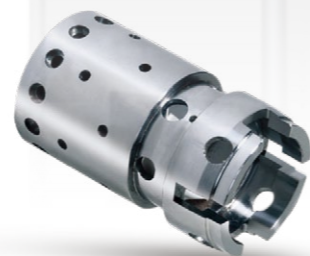
Windows is a registered trademark of Microsoft Corporation in the United States and other countries. MTConnect is a registered trademark of AMT in the United States and other countries.



## The INTEGREX j series — your portal to multi-tasking

Designed to deliver high speed, high accuracy machining, ease of operation and the maximum value - the INTEGREX j series will define a new standard for multi-tasking machines

INTEGREX j-200



Horizontal multi-tasking machine

# INTEGREX J SERIES

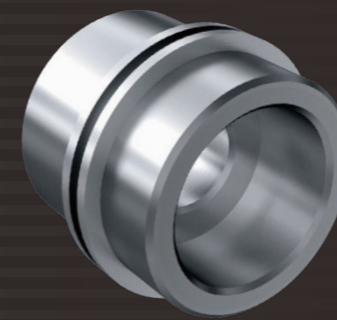
- Exceptional milling versatility thanks to the indexing milling spindle
- Compact machine with large machining area
- Integral spindle / motors utilized by main and second spindles (INTEGREX j-200S)
- Tool magazine is located at the front to increase setup efficiency
- 200 mm Y-axis stroke and 450 mm X-axis stroke provide large machining area (INTEGREX j-200)

# MAZATROL SMOOTHG

# The INTEGREX j series

The INTEGREX j series covers all by one machine

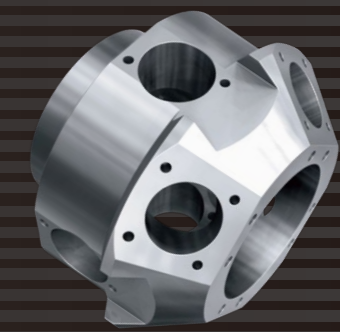
The INTEGREX j series provides technological innovation, higher quality and higher productivity which contributes to more effective overall management



2-axis turning



C-, Y-axis machining



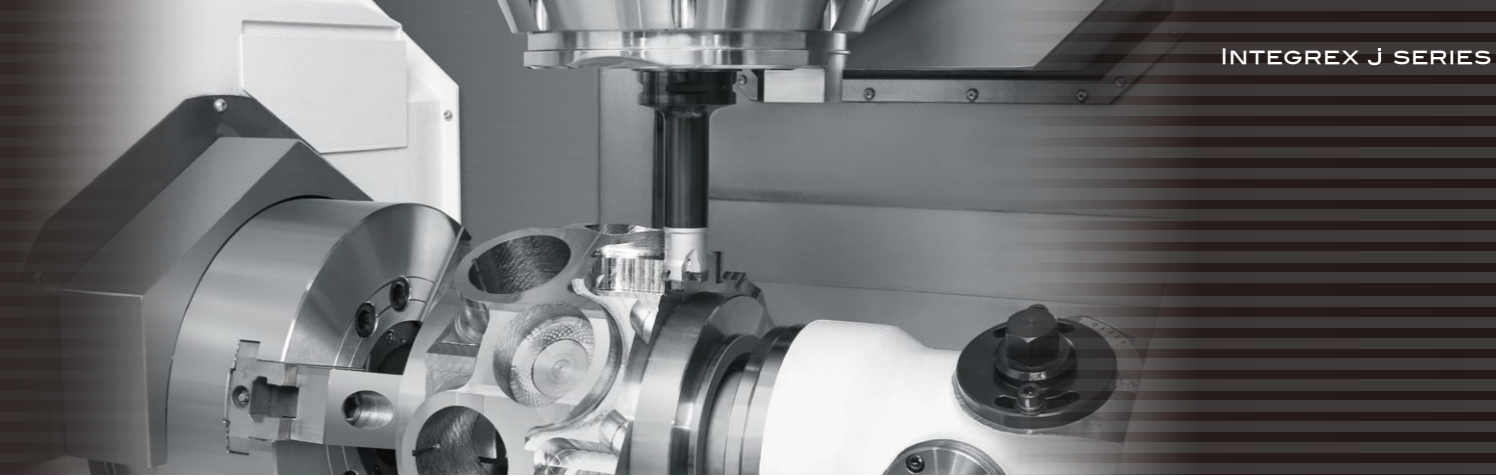
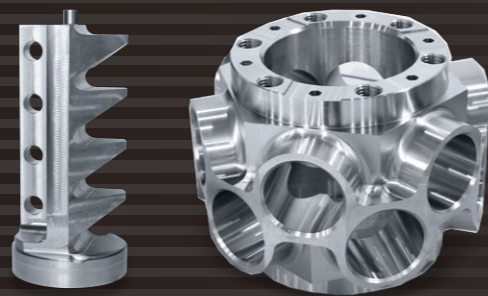
Angular machining

**DONE IN ONE** machine for all processes  
— solution for higher productivity

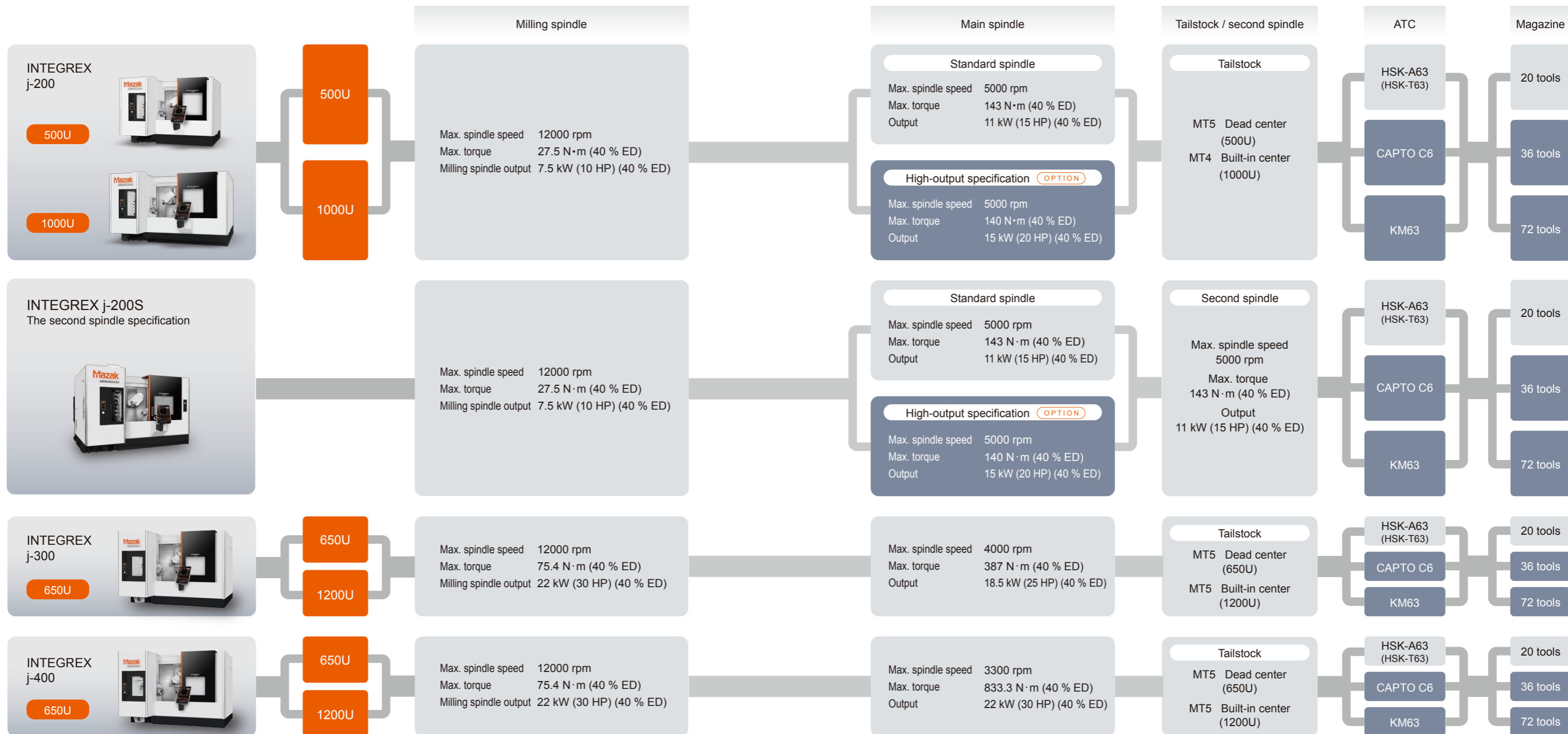
The benefits of **DONE IN ONE** processing

	Conventional processing equipment	Number of operators	Total floor space	Number of programs	Cutting tools	Number of special fixtures	In-process inventory / in-process time
<p>Turret lathe + machining center</p>	<ul style="list-style-type: none"> <li>• 2-axis CNC turning center</li> <li>• Vertical machining center with tilting-rotary table</li> </ul> <p>Two machines</p>	<p>Two operators</p>	<p>Two machines</p>	<p>Two programs</p>	<p>Two machines</p>	<p>One machine</p>	<p>Large</p>
<p>INTEGREX j series</p>	<p>One machine</p>	<p>One operator</p>	<p>One machine</p>	<p>One program</p>	<p>One machine</p>	<p>Not required</p>	<p>Small</p>

# The INTEGREX j series designed to meet your production requirements



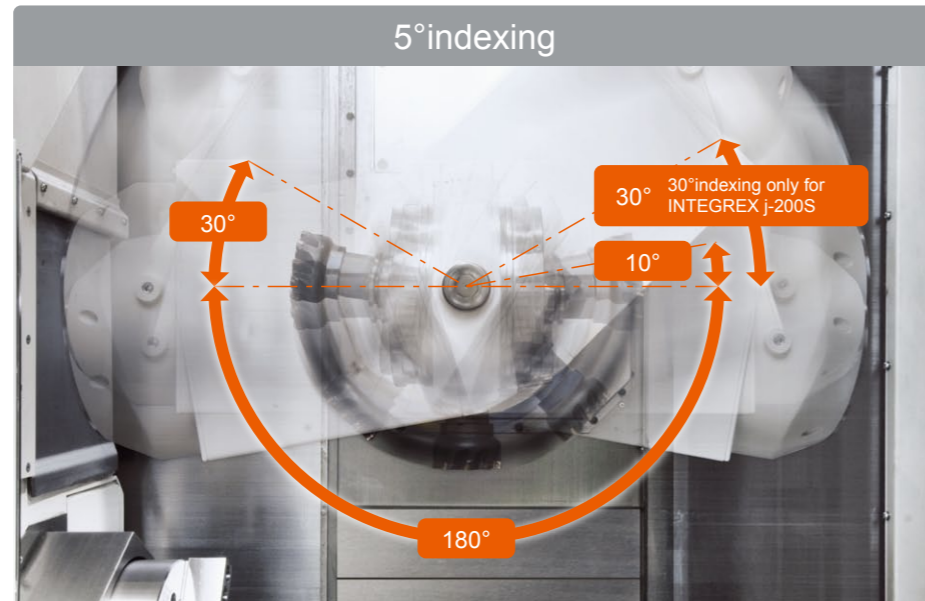
Standard equipment    Optional equipment



# Higher Productivity

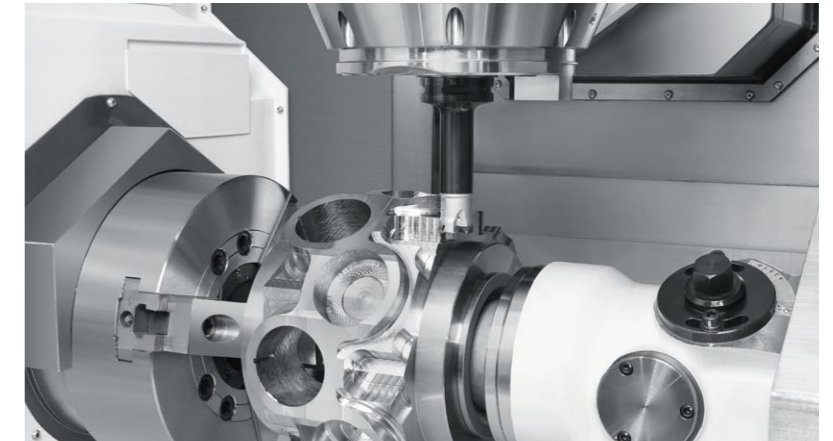
## Exceptional milling versatility thanks to the indexing milling spindle

The milling spindle unit can be indexed in 5° increments over a total range from -30° to 190° making it possible to perform outer diameter machining and facing with the same tool. Additionally, the milling spindle can be radially indexed and clamped allowing the same tool to be used for turning in both forward and reverse directions. As a result, machining cycle times can be reduced without changing tools.



## High-performance milling spindle

The milling spindle can be effectively used for a wide range of workpiece material applications from steel to non-ferrous materials.



	j-200, j-200S	j-300, j-400
Max. milling spindle speed	12000 rpm	12000 rpm
Max. spindle output	AC 7.5 kW (10 HP) [ 40 % ED ]	AC 22 kW (30 HP) [ 40 % ED ]
	AC 5.5 kW (7.5 HP) [ Cont.rating ]	AC 15 kW (20 HP) [ Cont.rating ]
Max. torque	27.5 N·m [ 40 % ED ]	75.4 N·m [ 40 % ED ]

## Tool magazine located at front of machine

### Increased tool setup efficiency

The tool magazine (standard : 20 tools, option : 36, 72 tools) is located at the front of the machine for convenient tool setups.



INTEGREX j-200, j-200S	INTEGREX j-300, j-400
Max. tool length 210 mm	Max. tool length 400 mm
Max. tool diameter Φ125 mm*	Max. tool diameter Φ125 mm*
Max. tool weight 5 kg	Max. tool weight 10 kg

\* With optional 36 / 72 tool magazine : Φ90 mm (With adjacent pockets empty : Φ125 mm)

## Flash tool holder OPTION

From turning to milling, all machining can be done by one tool holder

With B-axis / tool indexing, all machining can be done by one tool holder. This not only reduces the number of tools, but also shortens machining time due to fewer tool change cycles.



O.D. machining by flash tool



Threading by flash tool



Milling by flash tool

# Higher Productivity

## Versatile main spindle

The main headstock features an integral spindle / motor designed for a wide range of applications, from heavy-duty cutting at low speed to high speed cutting of aluminum and other nonferrous materials. The C-axis can be indexed in 0.0001 degree increments and is rigidly clamped for high accuracy machining by the unique Mazak clamping system.



	j-200, j-200S	j-200, j-200S High-torque specification <small>(OPTION)</small>	j-300	j-400
Max. main spindle speed	5000 rpm	5000 rpm	4000 rpm	3300 rpm
Main spindle output	AC 11 kW (15 HP) [40 % ED] AC 7.5 kW (10 HP) [Cont.rating]	AC 15 kW (20 HP) [40 % ED] AC 11 kW (15 HP) [Cont.rating]	AC 18.5 kW (25 HP) [40 % ED] AC 15 kW (20 HP) [Cont.rating]	AC 22 kW (30 HP) [40 % ED] AC 18.5 kW (25 HP) [Cont.rating]
Max. torque	143 N · m [40 % ED]	140 N · m [40 % ED]	387 N · m [40 % ED]	883.3 N · m [40 % ED]
C-axis min. indexing increment	0.0001°	0.0001°	0.0001°	0.0001°
C-axis rapid traverse rate	555 rpm	555 rpm	555 rpm	555 rpm

## INTEGREX j-200 with second spindle performs continuous machining

The integral spindle / motor second spindle makes it possible to perform continuous machining from the first to second process. Workpieces features can be matches in phase during workpiece transfer from one spindle to the other to ensure high accuracy.

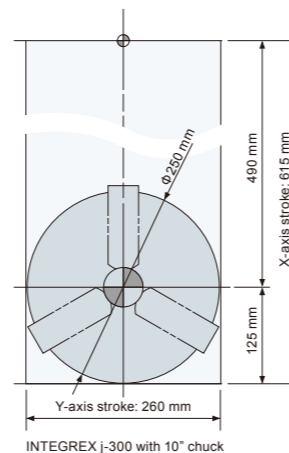
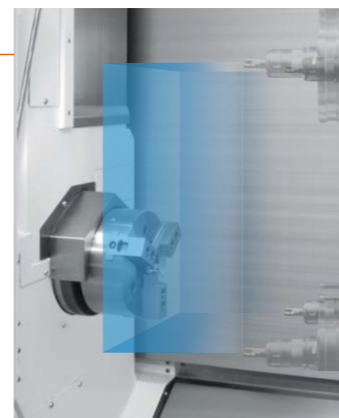
	j-200S
Max. main spindle speed	5000 rpm
Main spindle output	AC 11 kW (15 HP) [40 % ED] AC 7.5 kW (10 HP) [Cont.rating]
Max. torque	143 N · m [40 % ED]
C-axis min. indexing increment	0.001° (option : 0.0001° + contouring)
C-axis rapid traverse rate	555 rpm



## Large machining area

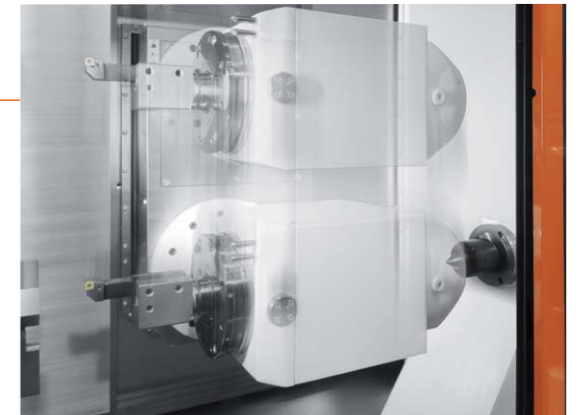
Large machining area provides high productivity with minimum tool interference even for large workpieces.

The long X- and Y-axes strokes allow face milling, end milling, and drilling to be performed in the large machining area without C-axis indexing.



## Minimum turret / tool interference

No interference between turret (B-axis: 0°) and tailstock (home position). Since a single tool is loaded in the turret milling spindle, interference with adjacent tools is completely eliminated.



## SMOOTH MACHINING CONFIGURATION

Machining time, finished surface smoothness and machining shape can be adjusted for improved productivity.



### VARIABLE ACCELERATION CONTROL

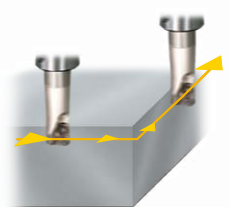
Variable acceleration control is a new function which permits the faster acceleration capability of linear axes to be used whenever possible. The slower acceleration of the rotary axes is not used for all program commands, resulting in faster machining cycle times.

### SMOOTH CORNER CONTROL

Improved finished surfaces and reduced cycle times by optimized acceleration / deceleration when machining corners.

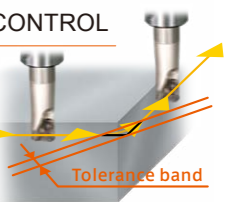
### Other systems

Move to next command position after reaching current command position



### SMOOTH CORNER CONTROL

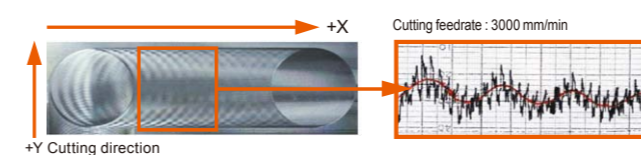
Move to next command position within tolerance band



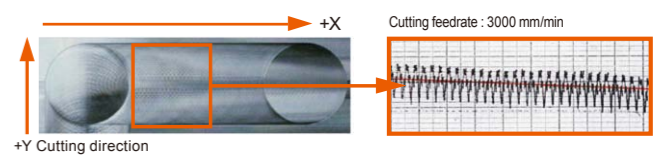
## ACTIVE VIBRATION CONTROL

Machine vibration can be reduced to perform excellent machining accuracy and high-speed machining.

### Without ACTIVE VIBRATION CONTROL



### With ACTIVE VIBRATION CONTROL



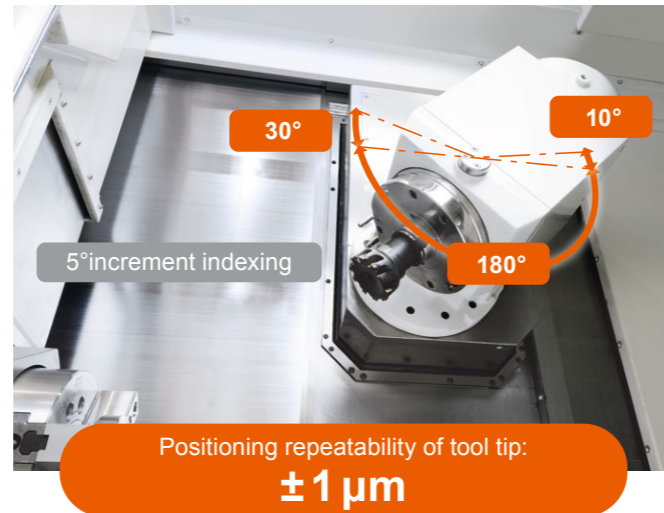
# Higher Accuracy

## High accuracy machining, same as a turning center

### Positioning repeatability of tool tip better than $\pm 1 \mu\text{m}$

#### Designed for high accuracy machining thanks to high accuracy coupling

The milling spindle turret (B-axis) is clamped by the high accuracy index coupling to realize high accuracy indexing - the same as a turning center with drum turret. Positioning repeatability of the tool tip is better than  $\pm 1 \mu\text{m}$  during automatic tool change. Dust is removed from the tool shank during tool change by an air blast through the spindle for stable continuous high accuracy machining.



INTEGREX j-200 shown

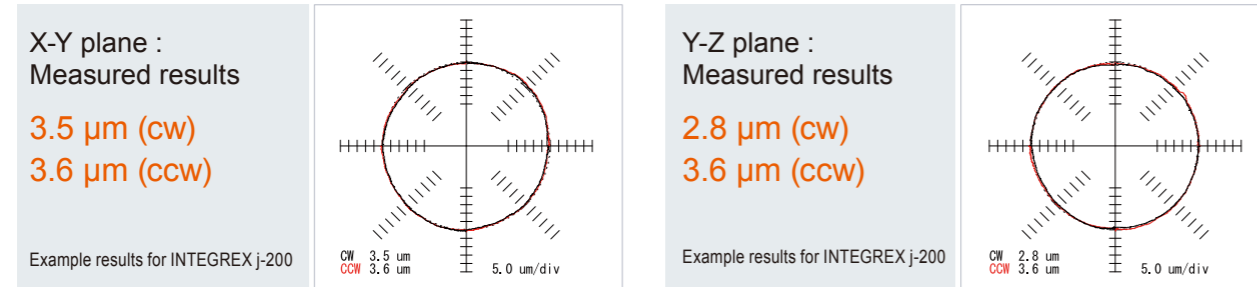
#### Mazak indexing clamp with high-rigidity

High-rigidity and high-cutting power is ensured when turning.

### DBB within $8 \mu\text{m}$

#### Higher circular interpolation accuracy is realized by high rigidity construction and new high-response servo motors. Mazak Precision Standard : $8 \mu\text{m}$

Example results



### Positioning accuracy : 2 times better than ISO standard (INTEGREX j-200 500U)

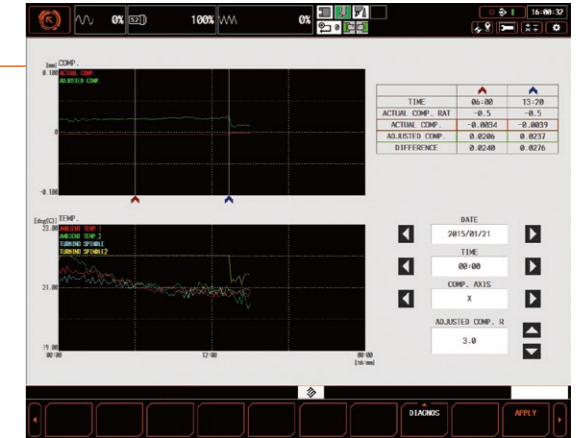
Mazak Precision Standard

Positioning accuracy	Mazak Precision Standard		Positioning repeatability	Mazak Precision Standard	
	Axis	Value		Axis	Value
Positioning accuracy	X-axis	11 $\mu\text{m}$	Positioning repeatability	X-axis	3 $\mu\text{m}$
	Y-axis	11 $\mu\text{m}$		Y-axis	3 $\mu\text{m}$
	Z-axis	12.5 $\mu\text{m}$		Z-axis	4 $\mu\text{m}$
	C-axis	11"		C-axis	6"

Note) The inspection is conducted according to ISO-230 on a recommended foundation with room temperature controlled to  $22^{\circ}\text{C} \pm 1^{\circ}\text{C}$  after machine has reached operation temperature.

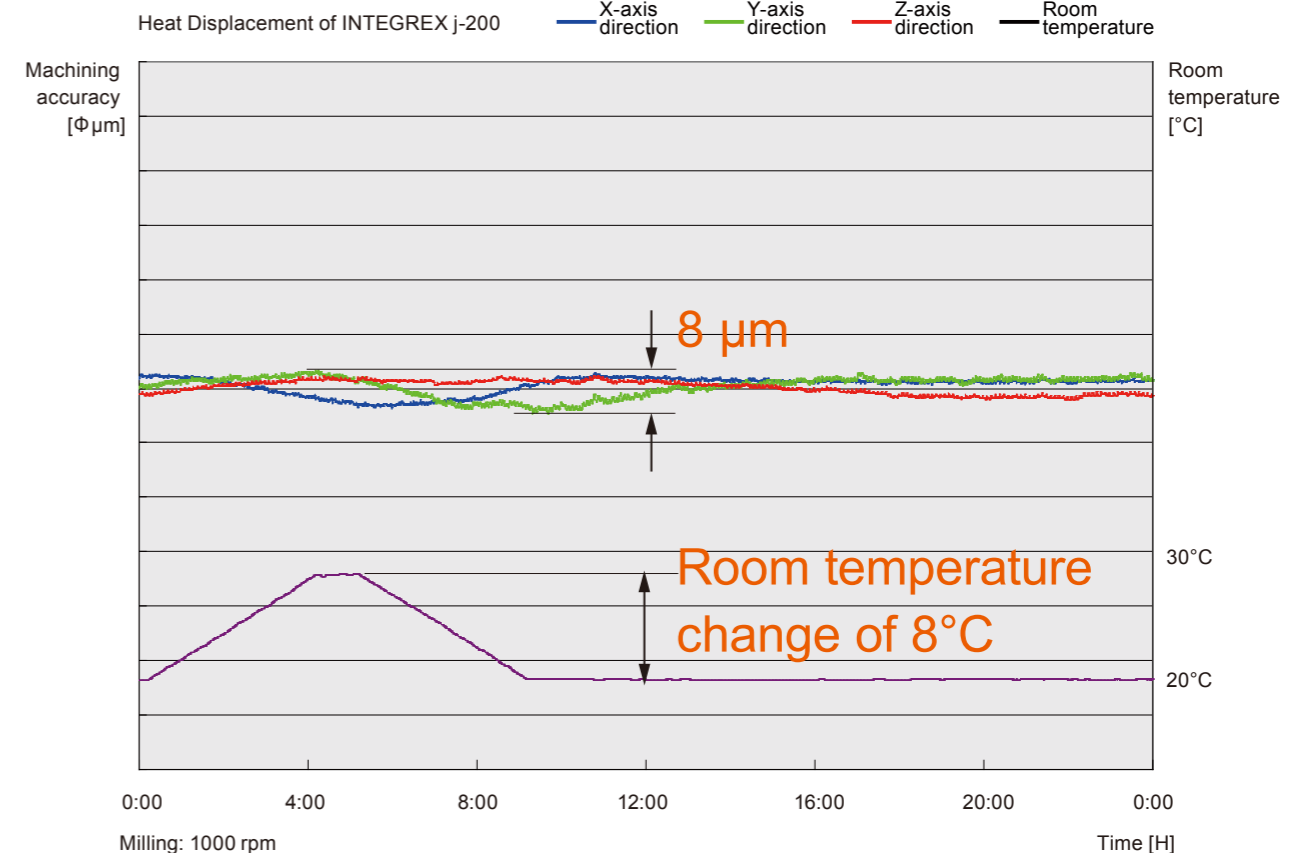
## THERMAL SHIELD

The THERMAL SHIELD is an automatic compensation for room temperature changes, which realizes enhanced continuous machining accuracy. Mazak has performed extensive testing in a variety of environments in a temperature controlled room and has used the results to develop a control system that automatically compensates for temperature changes in the machining area. Changes in the room temperature and compensation data are shown visually.



Temperature and compensation are displayed on screen. Operator can adjust compensation by looking at the data.

The INTEGREX j series is equipped with automatic compensation for room temperature changes, the THERMAL SHIELD, to realize enhanced continuous machining accuracy. Mazak has performed extensive testing in a variety of environments in a temperature controlled room and has used the results to develop a control system that realizes continuous machining accuracy better than  $\Phi 8 \mu\text{m}$  in a room temperature change of  $8^{\circ}\text{C}$  according to the Mazak Precision Standard specification.



# Ergonomics

Excellent access to tools and chucks for convenient machine setups thanks to ergonomic design



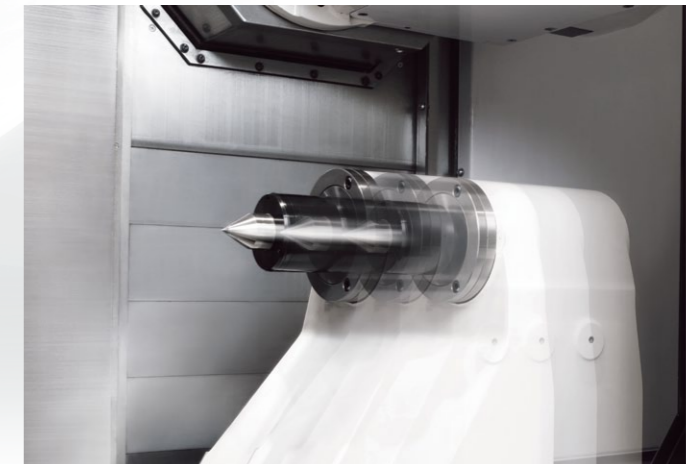
## Large window

The large front door window allows the operator to easily monitor workpiece machining.



## CNC tailstock [INTEGREX j-200, j-300, j-400]

Controlling the movement and setting the thrust force of the tailstock is a simple operation by using the CNC. The operator can set the tailstock position on the setup screen and move the tailstock to the correct position by menu key. The thrust force is set by menu key and M-code by 0.1 kN increments to ensure accurate turning of shaft workpieces.



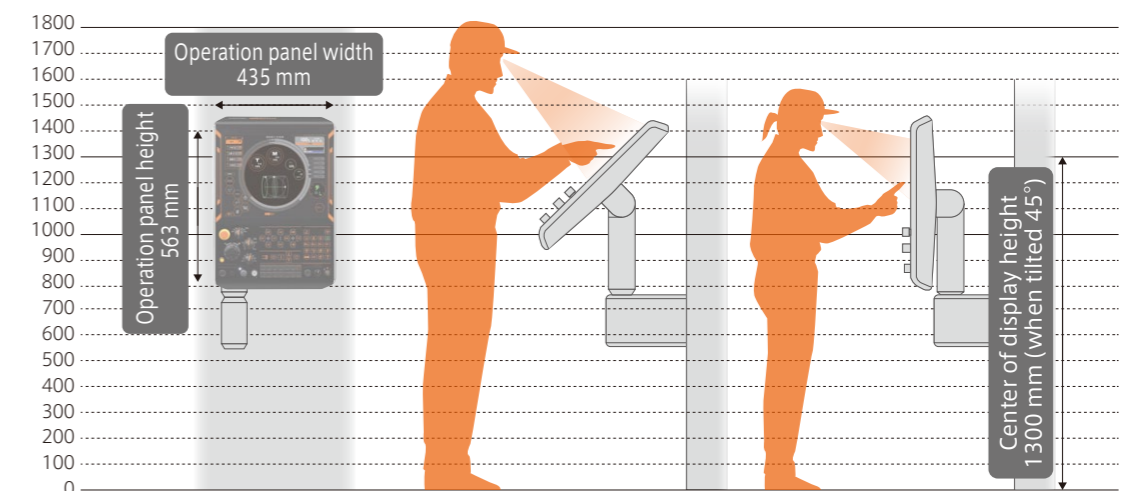
## Ergonomic design for convenient operation

Workpiece loading and unloading are extremely convenient thanks to short distances from the floor and machine front to the spindle center line.



## Adjustable CNC touch panel

Operation touch panel can be tilted to the optimum position for any operator's height to ensure ease of operation.



# Ergonomics

## Tool magazine operation panel



The tool magazine operation panel is designed for increased ease of operation. Instead of having just a forward / reverse button for indexing the tool magazine and manually positioning the desired tool pocket, the pocket number or tool number can be input into the operation panel numeric keyboard and the desired pocket will be automatically brought into position. This is standard equipment for the different capacity tool magazines.

## Machine Interference Prevention - SAFETY SHIELD

When an operator manually moves the machine axes for setup, tool measurement or changing inserts, the CNC shows a synchronized 3D model on the display for checking machine interference. If any machine interference occurs, the machine motion automatically stops. This function for use during automatic operation is optionally available.



## Verbal Message System - VOICE ADVISER

Verbal support for machine setup and safe conditions confirmation.



# Ease of Maintenance

## Comprehensive Spindle Monitoring - PERFORMANCE SPINDLE

The PERFORMANCE SPINDLE monitors a variety of properties such as temperature with sensors housed in the spindle and provides useful information to the operator. Thanks to this monitoring, production loss due to machine down time can be minimized.



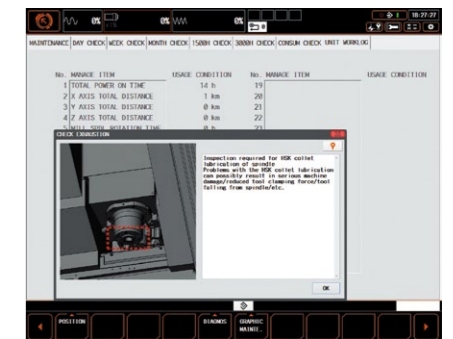
▲ Condition check  
Temperature as well as the motor load can be displayed.



▲ Running recorder  
Operation status of milling spindle (rpm / motor load) can be recorded for up to one year.

## Comprehensive Maintenance Monitor - MAINTENANCE SUPPORT

Useful information for improved preventative maintenance to prevent unexpected machine downtime.



## Maintenance area

Items requiring frequent access for machine maintenance, such as hydraulic and air pressure inlets, lubrication reservoirs and others are conveniently arranged in a central location.



# MAZATROL CNC System

The seventh generation MAZATROL CNC system — the core of Smooth Technology

## MAZATROL *SMOOTHG*

From setup to machining — designed for unsurpassed ease of operation

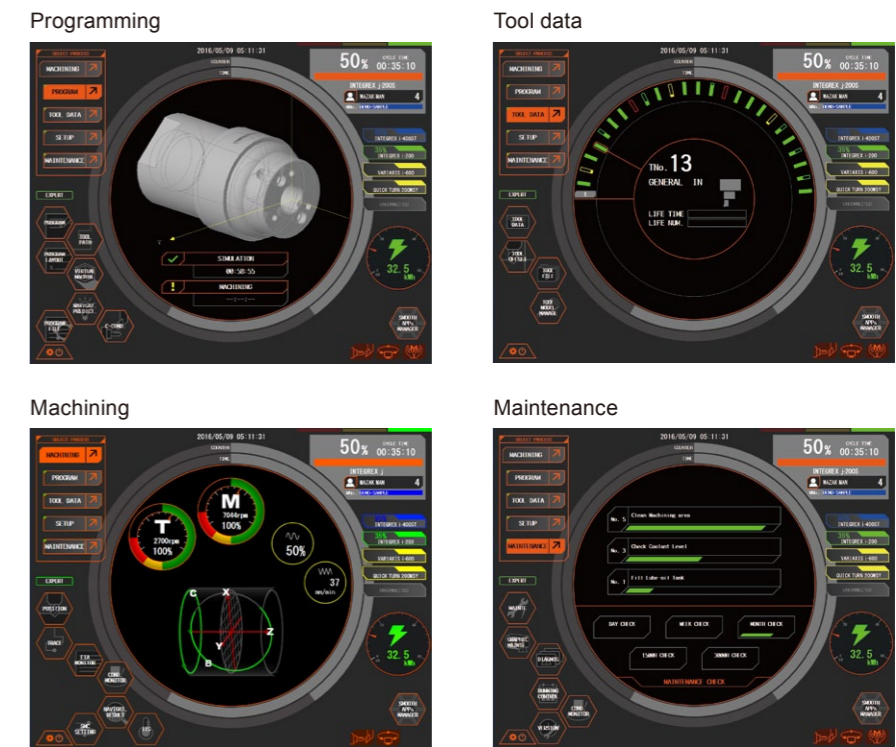


- 19" touch panel**  
Touch panel operation — similar to your smartphone or tablet
- USB port**  
Interface for peripheral equipment  
USB-1.0 + 2.0 standard
- SD card slot**  
Transfer program and tool data
- Operation switches**  
Large switches — color changes from orange to green when turned on
- Dials**  
For frequently-used axes selection and feedrate changes

New interface with touch operation ensures convenient data processing — programming, confirmation, editing, and tool data registration

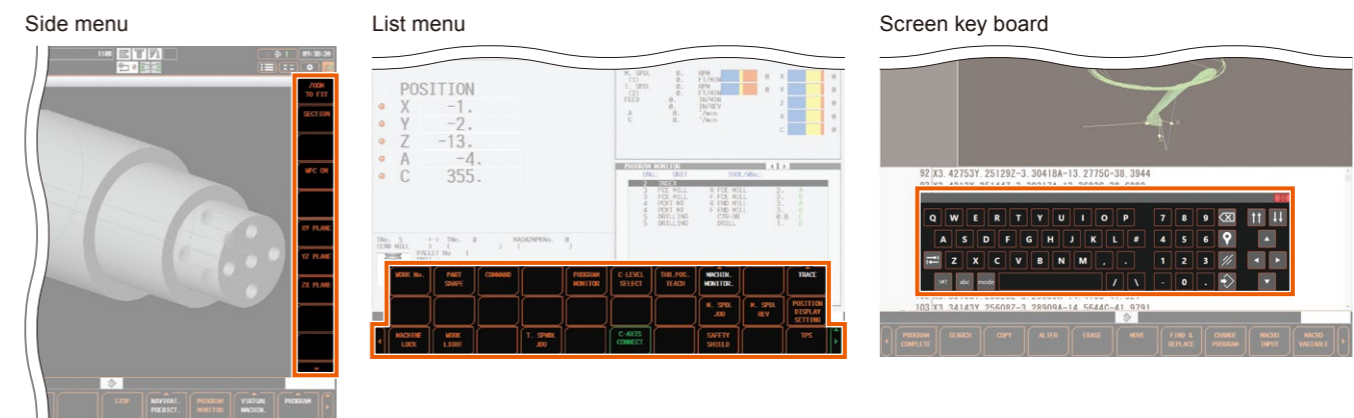
### Process home screens

Five different process home screens — each home screen displays the appropriate data in an easy-to-understand manner. Icons can be touched in each process display for additional screen displays.



### Pop-up windows

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

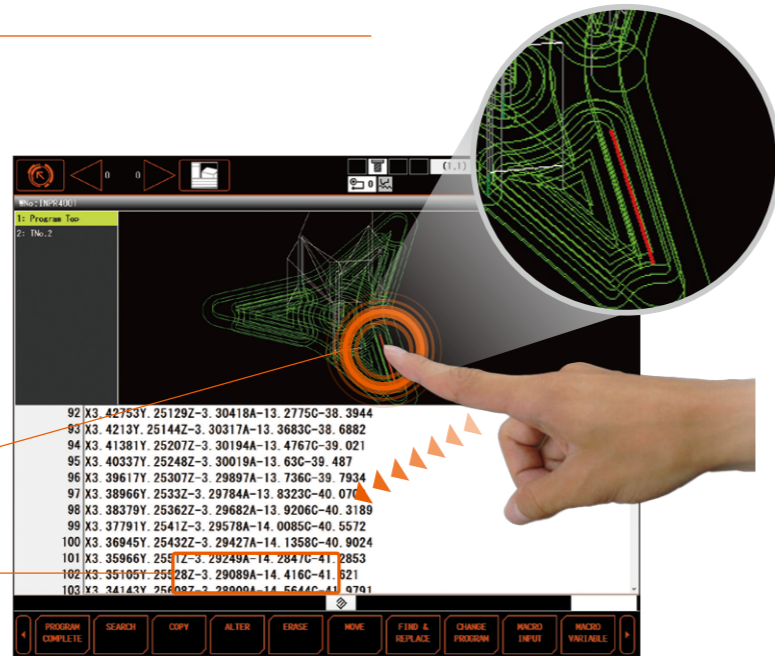


# Ease of Programming

## Visible programming screen

### QUICK EIA

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

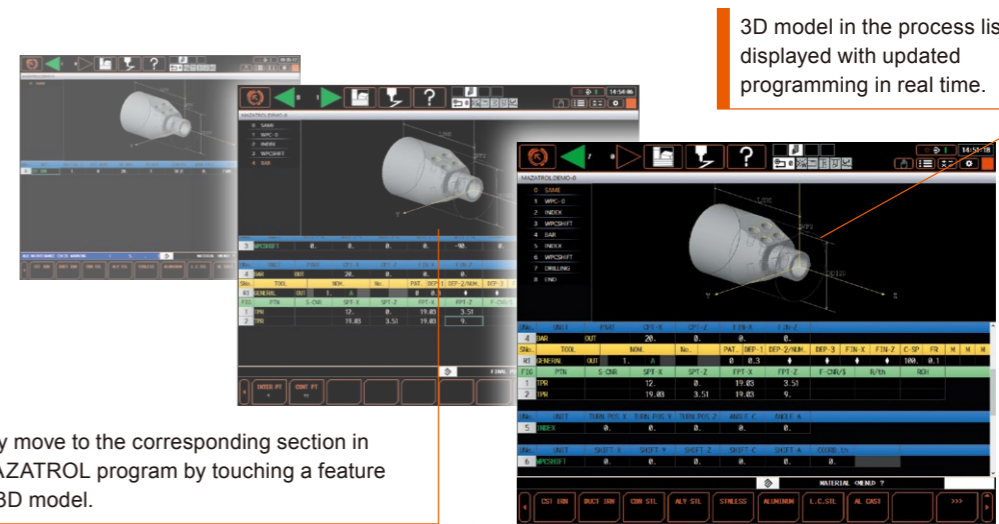


Selecting tool path by touching the screen

Moving to the corresponding EIA program line

### QUICK MAZATROL

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 immediately displayed to easily and quickly check for any programming error.

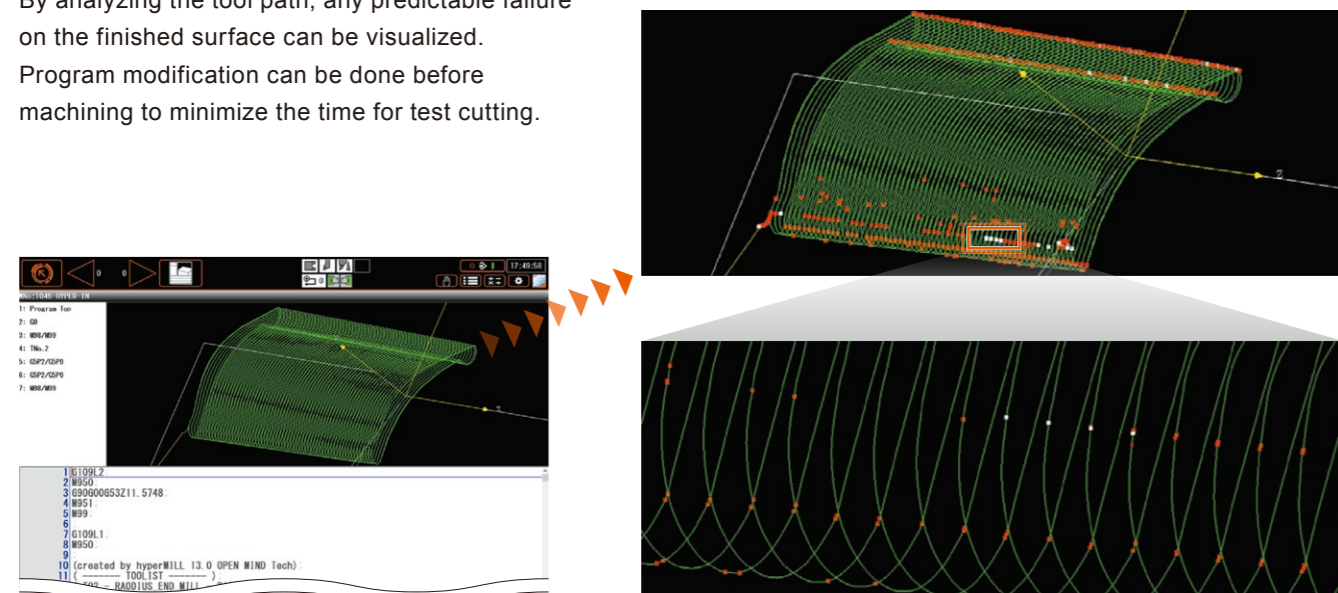


3D model in the process list is displayed with updated programming in real time.

Quickly move to the corresponding section in the MAZATROL program by touching a feature in the 3D model.

### VIEW SURF

By analyzing the tool path, any predictable failure on the finished surface can be visualized. Program modification can be done before machining to minimize the time for test cutting.



### 3D ASSIST

Workpiece and coordinates data can be imported from 3D CAD data to a MAZATROL program. No coordinate value inputs are required. Can reduce input errors and time for program checking.



Automatically input to MAZATROL program

CAD model importing

Shape selection

# Environmentally friendly



## Environmental considerations

The environment and our impact on our natural surroundings have always been important concerns of Yamazaki Mazak. This is shown by the fact that all factories in Japan where 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.



### Longer coolant service life

The grease lubrication system for the roller linear guides eliminates tramp oil contaminating the coolant. As a result, the service life of the coolant is extended with longer time periods between disposal.

### Lower electrical power consumption

LED lighting with lower electrical power consumption is standard equipment.

The optional chip conveyor is automatically shut off after a predetermined period.

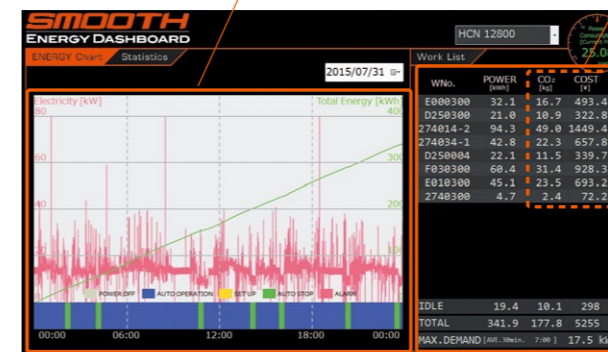


### Energy Dashboard OPTION

The Energy Dashboard provides a convenient visual monitoring of energy consumption and analysis.

Energy consumption displayed on graph

Display approximate CO<sub>2</sub> emission and electrical power cost



Energy consumption by workpieces

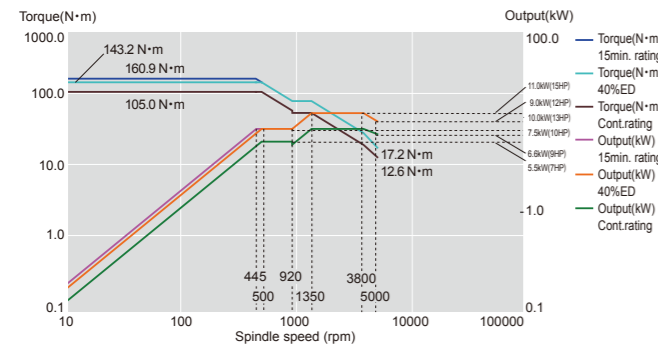
### Process screen display

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

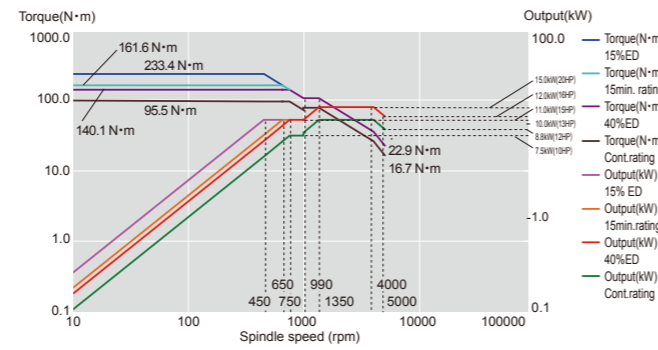


### Spindle output diagram (spindle)

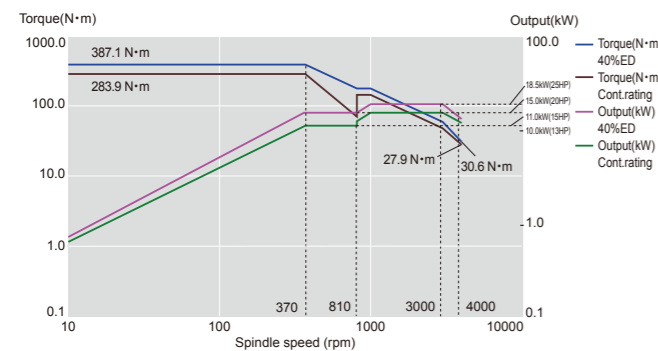
INTEGREX j-200, 200S main spindle (standard)



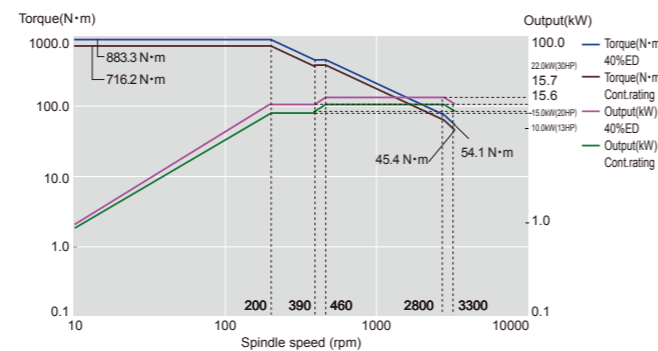
INTEGREX j-200, 200S high-output main spindle (option)



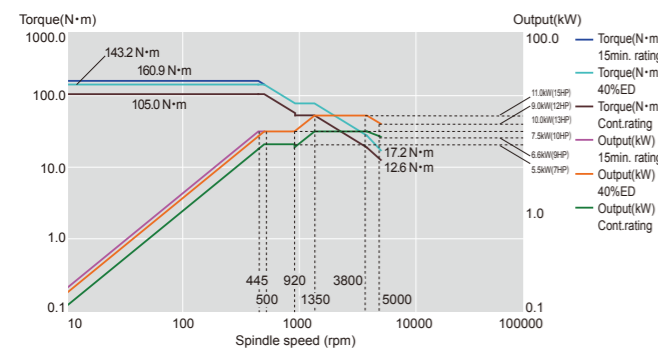
INTEGREX j-300 main spindle (standard)



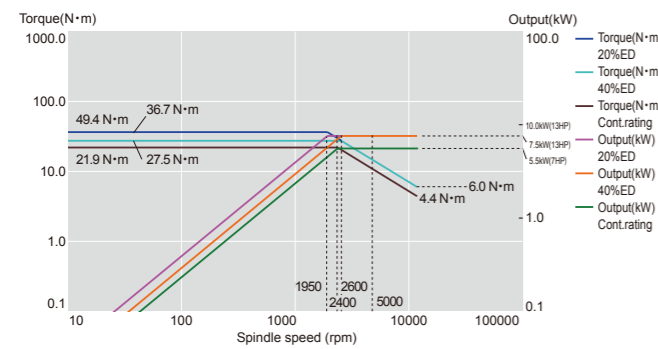
INTEGREX j-400 main spindle (standard)



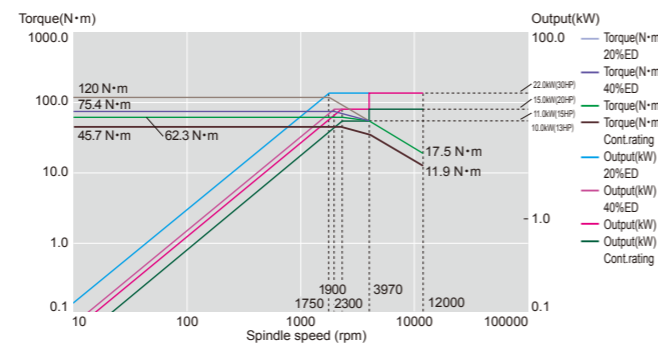
INTEGREX j-200S second spindle (standard)



INTEGREX j-200, 200S milling spindle



INTEGREX j-300, 400 milling spindle



### MAZATROL SmoothG Specifications

	MAZATROL	EIA
Number of controlled axes	Simultaneous 2 ~ 4 axes	Simultaneous 2 ~ 4 axes
Least input increment	0.0001 mm, 0.00001°, 0.0001°	
High speed, high precision control	Shape error desighation, Smooth corner control, Rapid traverse overlap, Rotary axis shape compensation	Shape error desighation, Smooth corner control, Rapid traverse overlap, Rotary axis shape compensation, High-speed machining mode, High-speed smoothing control function
Interpolation	Positioning (Linear interpolation), Positioning (Independent interpolation), Linear interpolation, Circular interpolation, Cylindrical coordinate interpolation, Polar coordinate interpolation, Equal pitch threading, Re-threading *, Override threading *, Override variable threading *, Milling spindle synchronized tapping *	Positioning (Linear interpolation), Positioning (Independent interpolation), Linear interpolation, Circular interpolation, Spiral interpolation, Helical interpolation, Equal pitch threading, Variable pitch threading, Threading (C-axis interpolation type), Cylindrical coordinate interpolation *, Fine spline interpolation *, NURBS interpolation *, Polar coordinate interpolation *, Re-threading *, Override threading *, Override variable threading *, Milling spindle synchronized tapping *
Feedrate	Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Dwell (specified time, specified number of rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate clamp, Variable acceleration / deceleration control, Constant control for G0 tilting *	Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Inverse time feed, Dwell (specified time, specified number of rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate clamp, Time constant changing for G1, Variable acceleration / deceleration control, Constant control for G0 tilting *
Program registration	Max. number of programs : 960, Program storage : 2 MB, Program storage expansion : 8 MB *, Program storage expansion : 32 MB *	
Control display	Display : 19" touch panel, Resolution : SXGA	
Spindle functions	S code output, Spindle speed clamp, Spindle speed override, Spindle speed reaching detection, Multiple position orient, Constant surface speed, Spindle speed command with decimal digits, Synchronized spindle control, Max. speed control for spindle	
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, T 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, Additional work coordinates (300 set)	
Machine functions	Angled surface cutting, Polygon cutting *, Hobbing *, Shaping function *, Dynamic compensation II *	
Machine compensation	G0 / G1 independent backlash compensation, Pitch error compensation, Geometric deviation compensation, Volumetric compensation *	
Protection functions	Emergency stop, Interlock, Stroke check before travelling, Barrier, Retraction function for the vertical axes, 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 control	Optional stop, Dry run,	Optional block skip, Optional stop, Dry run,
Manual measuring functions	Automatic handle control, MDI control, TPS, Restart, Single process, Machine lock	Automatic handle control, MDI control, TPS, Restart, Restart2, Collation stop, Machine lock
Automatic measuring functions	Tool length and tip teach, Touch sensor coordinates measurement, Workpiece offset measurement, WPC coordinate measurement, Measurement on machine, Tool eye measurement	Tool length and tip teach, Tool offset teach, Touch sensor coordinates measurement, Workpiece offset measurement, WPC coordinate measurement, Measurement on machine, Tool eye measurement
MDI measurement	Coordinate measurement	
Interface	PROFIBUS-DP *, EtherNet I/P *, CC-Link *	
Card interface	SD card interface, USB	
EtherNet	10M / 100M / 1Gbps	

\* Option

Standard Machine Specifications

		INTEGREX j-200		INTEGREX j-200S
		500U	1000U	
Capacity	Max. swing	Φ530 mm	Φ530 mm	Φ530 mm
	Max. machining diameter *1	Φ500 mm	Φ500 mm	Φ500 mm
	Max. machining length	500 mm	1016 mm	910 mm
	Max. bar work capacity	Φ65 mm	Φ65 mm	Φ65 mm
Travel	X-axis travel	450 mm	450 mm	450 mm
	Y-axis travel	200 mm (±100 mm)	200 mm (±100 mm)	200 mm (±100 mm)
	Z-axis travel	550 mm (without ATC)	1066 mm (without ATC)	960 mm (without ATC)
	B-axis travel	-30° ~ 190° (5° min. indexing increment )	-30° ~ 190° (5° min. indexing increment )	-30° ~ 210° (5° min. indexing increment )
	C-axis travel	360°	360°	360°
Main spindle	Spindle speed *2	5000 rpm	5000 rpm	5000 rpm
	Spindle nose	A2-6"	A2-6"	A2-6"
	Spindle bore	Φ76 mm	Φ76 mm	Φ76 mm
	Bearing ID (front side)	Φ110 mm	Φ110 mm	Φ110 mm
	Min. indexing increment	0.0001°	0.0001°	0.0001°
Second spindle	Spindle speed *2	—	—	5000 rpm
	Spindle nose	—	—	A2-5"
	Spindle bore	—	—	Φ61 mm
	Bearing ID (front side)	—	—	Φ90
	Min. indexing increment	—	—	0.001°
Milling spindle	Turret type	Single spindle turret with ATC	Single spindle turret with ATC	Single spindle turret with ATC
	Rotary tool spindle speed	12000 rpm	12000 rpm	12000 rpm
	Rotary tool spindle max. torque (40 % ED) (Cont. rating)	27.5 N·m 21.9 N·m	27.5 N·m 21.9 N·m	27.5 N·m 21.9 N·m
Rapid traverse rate	X-axis	40000 mm/min	40000 mm/min	40000 mm/min
	Y-axis	40000 mm/min	40000 mm/min	40000 mm/min
	Z-axis	40000 mm/min	40000 mm/min	40000 mm/min
	W-axis	8000 mm/min	8000 mm/min	30000 mm/min
	C-axis	555 rpm	555 rpm	555 rpm
Automatic tool changer system	Tool shank type	HSK-A63 (T63) <Option :CAPTO C6, KM63>	HSK-A63 (T63) <Option :CAPTO C6, KM63>	HSK-A63 (T63) <Option :CAPTO C6, KM63>
	Tool storage capacity	20-tools (Option : 36, 72-tool magazine)	20-tools (Option : 36, 72-tool magazine)	20-tools (Option : 36, 72-tool magazine)
	Max. tool diameter *3	Φ125 mm	Φ125 mm	Φ125 mm
	Max. tool length (from gauge line)	210 mm	210 mm	210 mm
	Max. tool weight	5 kg	5 kg	5 kg
Tailstock	Center	MT 5 (Dead center)	MT 4 (Built-in center)	—
Motors	Main Spindle motor (40 % ED) (Cont. rating)	AC 11 kW (15 HP) AC 7.5 kW (10 HP)	AC 11 kW (15 HP) AC 7.5 kW (10 HP)	AC 11 kW (15 HP) AC 7.5 kW (10 HP)
	Second spindle motor (40 % ED) (Cont. rating)	—	—	AC 11 kW (15 HP) AC 7.5 kW (10 HP)
	Milling spindle motor (40 % ED) (Cont. rating)	AC 7.5 kW (10 HP) AC 5.5 kW (7.4 HP)	AC 7.5 kW (10 HP) AC 5.5 kW (7.4 HP)	AC 7.5 kW(10 HP) AC 5.5 kW(7.4 HP)
	Coolant pump motor	1.2 kW (60 Hz)	1.2 kW (60 Hz)	1.2 kW (60 Hz)
	Coolant	Tank capacity	150 L	180 L
Machine size	Machine height	2400 mm	2400 mm	2400 mm
	Floor space requirement	2990 mm × 2420 mm	3790 mm × 2460 mm	3790 mm × 2560 mm
	Weight	7400 kg	8300 kg	9200 kg
Sound	Equivalent continuous sound pressure level at operator position (dependant on equipment options)	Less than 80 db (A)		

\*1 For tool projection length of 65 mm / V in vertical position  
 \*2 Maximum speed of the spindle is limited by the chuck specifications. Spindle speed and maximum turning length depend on chuck specifications  
 \*3 With optional 36 / 72 tool magazine : Φ90 mm (With adjacent pockets empty : Φ125 mm)

		INTEGREX j-300		INTEGREX j-400	
		650U	1200U	650U	1200U
Capacity	Max. swing / Swing over cross slide	Φ640 mm **	Φ640 mm **	Φ640 mm **	Φ640 mm **
	Max. machining diameter *1	Φ500 mm	Φ500 mm	Φ500 mm	Φ500 mm
	Max. machining length	629 mm	1165 mm	629 mm	1165 mm
	Max. bar work capacity	Φ80 mm	Φ80 mm	Φ102 mm	Φ102 mm
Travel	X-axis travel	615 mm	615 mm	615 mm	615 mm
	Y-axis travel	260 mm (±130 mm)	260 mm (±130 mm)	260 mm (±130 mm)	260 mm (±130 mm)
	Z-axis travel	695 mm (without ATC)	1231 mm (without ATC)	695 mm (without ATC)	1231 mm (without ATC)
	B-axis travel	-30° ~ 190° (5° min. indexing increment )	-30° ~ 190° (5° min. indexing increment )	-30° ~ 190° (5° min. indexing increment )	-30° ~ 190° (5° min. indexing increment )
	C-axis travel	360°	360°	360°	360°
Main spindle	Spindle speed *2	4000 rpm	4000 rpm	3300 rpm	3300 rpm
	Spindle nose	A2-8"	A2-8"	A2-8"	A2-8"
	Spindle bore	Φ91 mm	Φ91 mm	Φ112 mm	Φ112 mm
	Bearing ID (front side)	Φ130 mm	Φ130 mm	Φ150 mm	Φ150 mm
	Min. indexing increment	0.0001°	0.0001°	0.0001°	0.0001°
Milling spindle	Turret type	Single spindle turret with ATC	Single spindle turret with ATC	Single spindle turret with ATC	Single spindle turret with ATC
	Rotary tool spindle speed	12000 rpm	12000 rpm	12000 rpm	12000 rpm
	Rotary tool spindle max. torque (40 % ED) (Cont. rating)	75.4 N·m 45.7 N·m	75.4 N·m 45.7 N·m	75.4 N·m 45.7 N·m	75.4 N·m 45.7 N·m
Rapid traverse rate	X-axis	50000 mm/min	50000 mm/min	50000 mm/min	50000 mm/min
	Y-axis	40000 mm/min	40000 mm/min	40000 mm/min	40000 mm/min
	Z-axis	50000 mm/min	50000 mm/min	50000 mm/min	50000 mm/min
	W-axis	8000 mm/min	8000 mm/min	8000 mm/min	8000 mm/min
	C-axis	555 rpm	555 rpm	555 rpm	555 rpm
Automatic tool changer system	Tool shank type	HSK-A63 (T63) <Option :CAPTO C6, KM63>	HSK-A63 (T63) <Option :CAPTO C6, KM63>	HSK-A63 (T63) <Option :CAPTO C6, KM63>	HSK-A63 (T63) <Option :CAPTO C6, KM63>
	Tool storage capacity	20-tools (Option :36, 72-tool magazine)	20-tools (Option :36, 72-tool magazine)	20-tools (Option :36, 72-tool magazine)	20-tools (Option :36, 72-tool magazine)
	Max. tool diameter *3	Φ125 mm	Φ125 mm	Φ125 mm	Φ125 mm
	Max. tool length (from gauge line)	400 mm	400 mm	400 mm	400 mm
	Max. tool weight	10 kg	10 kg	10 kg	10 kg
Tailstock	Center	MT 5 (Dead center)	MT 5 (Built-in center)	MT 5 (Dead center)	MT 5 (Built-in center)
Motors	Main Spindle motor (40 % ED) (Cont. rating)	AC 18.5 kW (25 HP) AC 15 kW (20 HP)	AC 18.5 kW (25 HP) AC 15 kW (20 HP)	AC 22 kW (30 HP) AC 18.5 kW (25 HP)	AC 22 kW (30 HP) AC 18.5 kW (25 HP)
	Milling spindle motor (40 % ED) (Cont. rating)	AC 22 kW (30 HP) AC 15 kW (20 HP)	AC 22 kW (30 HP) AC 15 kW (20 HP)	AC 22 kW (30 HP) AC 15 kW (20 HP)	AC 22 kW (30 HP) AC 15 kW (20 HP)
	Coolant pump motor	1.2 kW (60 Hz)	1.2 kW (60 Hz)	1.2kW (60 Hz)	1.2kW (60 Hz)
Power requirement	Required power capacity (40 % ED) (Cont. rating)	51.84 kVA 46.82 kVA	51.84 kVA 46.82 kVA	56.85 kVA 51.84 kVA	56.85 kVA 51.84 kVA
	Air source	0.5 MPa (5 kgf/cm <sup>2</sup> ), minimum 340 L/min	0.5 MPa (5 kgf/cm <sup>2</sup> ), minimum 340 L/min	0.5 MPa (5 kgf/cm <sup>2</sup> ), minimum 340 L/min	0.5 MPa (5 kgf/cm <sup>2</sup> ), minimum 340 L/min
Coolant	Tank capacity	157 L	270 L	157 L	270 L
Machine size	Machine height	2720 mm	2720 mm	2720 mm	2720 mm
	Floor space requirement	3915 mm × 2705 mm	4830 mm × 2705 mm	4240 mm × 2705 mm	5130 mm × 2705 mm
	Weight	12300 kg	14200 kg	12600 kg	14500 kg
Sound	Equivalent continuous sound pressure level at operator position (dependant on equipment options)	Less than 80 db (A)			

\*\* For tool projection length of 65 mm / V in vertical position  
 \*2 Maximum speed of the spindle is limited by the chuck specifications. Spindle speed and maximum turning length depend on chuck specifications  
 \*3 With optional 36 / 72 tool magazine : Φ90 mm (With adjacent pockets empty : Φ125 mm)  
 \*\* With optional 36 / 72 tool magazine : Φ660 mm

Standard and optional equipment

		● Standard equipment ○ Optional equipment — N/A							
		INTEGREX j-200		INTEGREX j-200S	INTEGREX j-300		INTEGREX j-400		
		500U	1000U		650U	1200U	650U	1200U	
Machine	8"non through-hole chuck N-08A0615 (Kitagawa)	○	○	○	—	—	—	—	
	8"through-hole chuck B-208A615 (Kitagawa) [Φ51 mm]*	●	●	●	—	—	—	—	
	8"through-hole chuck BB-08 (Kitagawa) [Φ65 mm]*	○	○	○	—	—	—	—	
	Second spindle 8" through-hole chuck (B-208A615 + non through-hole cylinder)	—	—	●	—	—	—	—	
	10"non through-hole chuck N-10A0815 (Kitagawa)	—	—	—	○	○	—	—	
	10"through-hole chuck B-210A0815X (Kitagawa) [Φ77 mm]*	—	—	—	●	●	—	—	
	10"through-hole chuck BB-210A0815 (Kitagawa) [Φ80 mm]*	—	—	—	○	○	—	—	
	12"non through-hole chuck N-12A0815 (Kitagawa)	—	—	—	○	○	—	—	
	12"through-hole chuck B-212A0815 (Kitagawa) [Φ80 mm]*	—	—	—	○	○	—	—	
	12"non through-hole chuck N-12A0815 (Kitagawa)	—	—	—	—	—	○	○	
	12"through-hole chuck B-212A0815X (Kitagawa) [Φ102 mm]*	—	—	—	—	—	●	●	
	15"non through-hole chuck N-15A0815 (Kitagawa)	—	—	—	—	—	○	○	
	15"through-hole chuck B-15A0815 (Kitagawa) [Φ102 mm]*	—	—	—	—	—	○	○	
	Collet chuck SAD65	○	○	○	—	—	—	—	
	High / low chuck pressure	○	○	○	○	○	○	○	
	B-axis 5° index	●	●	●	●	●	●	●	
	B-axis 1° index	○	○	○	○	○	○	○	
	36 tool magazine	○	○	○	○	○	○	○	
	72 tool magazine	○	○	○	○	○	○	○	
	Live center LC-5SW (5000 rpm) (NSK)	●	—	—	○	—	○	—	
	Live center LC-5A (2000 rpm) (NSK)	○	—	—	●	—	●	—	
	Automatic steady rest	—	○	—	—	○	—	○	
	Fixed steady rest (Φ30 mm~Φ220 mm)	—	—	—	—	○	—	○	
	Double foot pedal switch	●	●	●	●	●	●	●	
	NC tailstock (MT5 dead center)	●	—	—	●	—	●	—	
	NC tailstock (MT4 built-in center)	○	●	—	—	—	—	—	
	NC tailstock (MT5 built-in center)	—	—	—	○	●	○	●	
	High accuracy	Scale feedback (X-, Y-, Z-axes)	○	○	○	○	○	○	○
		Coolant temperature control	○	○	○	○	○	○	○
		Ball screw core cooling (X-axis)	●	●	●	●	●	●	●
Ball screw core cooling (Y-axis)		○	○	○	○	○	○	○	
Ball screw core cooling (Z-axis)		●	●	●	○	○	○	○	
Safety equipment	Hydraulic pressure interlock	●	●	●	●	●	●	●	
	Chuck jaw open / close confirmation	●	●	●	●	●	●	●	
	Overload detection system	○	○	○	○	○	○	○	
Factory automation	Tool eye (automatic)	●	●	●	●	●	●	●	
	Automatic chuck jaw open / close	●	●	●	●	●	●	●	
	Tool breakage detection on magazine side	○	○	○	○	○	○	○	
	Mazak Monitoring System B (RMP60)	○	○	○	○	○	○	○	
	Bar feeder interface	○	○	○	○	○	○	○	
	Automatic parts catcher	○	○	○	○	○	○	○	
	Automatic front door	○	○	○	○	○	○	○	
	Auto power on / off + warm-up	●	●	●	●	●	●	●	
	Status light (3 colors)	○	○	○	○	○	○	○	
	Status light (1 color / machining end : yellow)	○	○	○	○	○	○	○	
	Status light (1 color / alarm : red)	○	○	○	○	○	○	○	
	Visual tool ID / tool management preparation	○	○	○	○	○	○	○	
	EIA / ISO code input	●	●	●	●	●	●	●	
	Robot interface	○	○	○	○	○	○	○	
	Gantry loader (FLEX-GANTRY LOADER 5)	—	—	○	—	—	—	—	

\* Bar capacity of chuck  
Standard chuck varies by market.

Standard and optional equipment

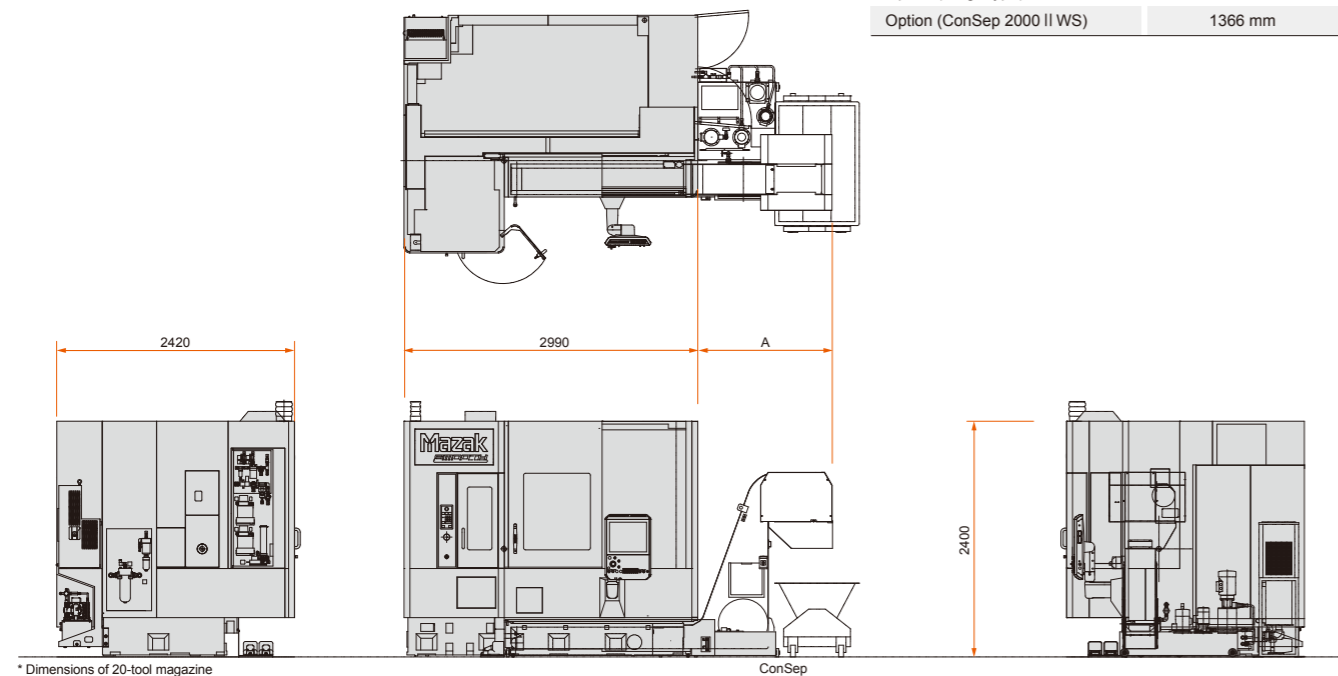
		● Standard equipment ○ Optional equipment — N/A						
		INTEGREX j-200		INTEGREX j-200S	INTEGREX j-300		INTEGREX j-400	
		500U	1000U		650U	1200U	650U	1200U
Coolant / chip disposal	Chip pan	●	●	●	●	●	●	●
	Chip conveyor (side discharge , HINGE)	○	○	○	○	○	○	○
	Chip conveyor (side discharge , ConSep)	○	○	○	○	○	○	○
	Chip bucket (swing type)	○	○	○	○	○	○	○
	Chip bucket (fixed type)	○	○	○	○	○	○	○
	Coolant through milling spindle	●	●	●	●	●	●	●
	High pressure coolant 1.5 MPa (with chiller unit)	○	○	○	—	—	—	—
	High pressure coolant 1.5 MPa (without chiller unit)	—	—	—	○	○	○	○
	High pressure coolant 3.5 MPa (with chiller unit)	○	○	○	○	○	○	○
	Preparation for high pressure coolant 7 MPa	○	○	○	○	○	○	○
	SUPERFLOW coolant system (without chiller)	○	○	○	○	○	○	○
	Shower coolant	—	○	○	○	○	○	○
	Workpiece cleaning coolant (HD1)	○	○	○	○	○	○	○
	Chuck jaw coolant & air blast (HD1)	○	○	○	○	○	○	○
	Air blast through spindle (HD1)	○	○	○	○	○	○	○
	Chuck jaw air blast	○	○	○	○	○	○	○
	Chuck jaw air blast (second spindle)	—	—	●	—	—	—	—
Turret air blast (flood coolant nozzle)	○	○	○	○	○	○	○	
Oil skimmer	○	○	○	○	○	○	○	
Preparation for mist collector	○	○	○	○	○	○	○	
others	Additional M function	○	○	○	○	○	○	○
	Manual CD	●	●	●	●	●	●	●
	Additional manual CD	○	○	○	○	○	○	○

Machine dimensions

Unit : mm

INTEGREX j-200 [500U]

Specifications	A
Standard (Without chip conveyor)	427 mm
Option (Hinge type)	997 mm
Option (ConSep 2000 II WS)	1366 mm

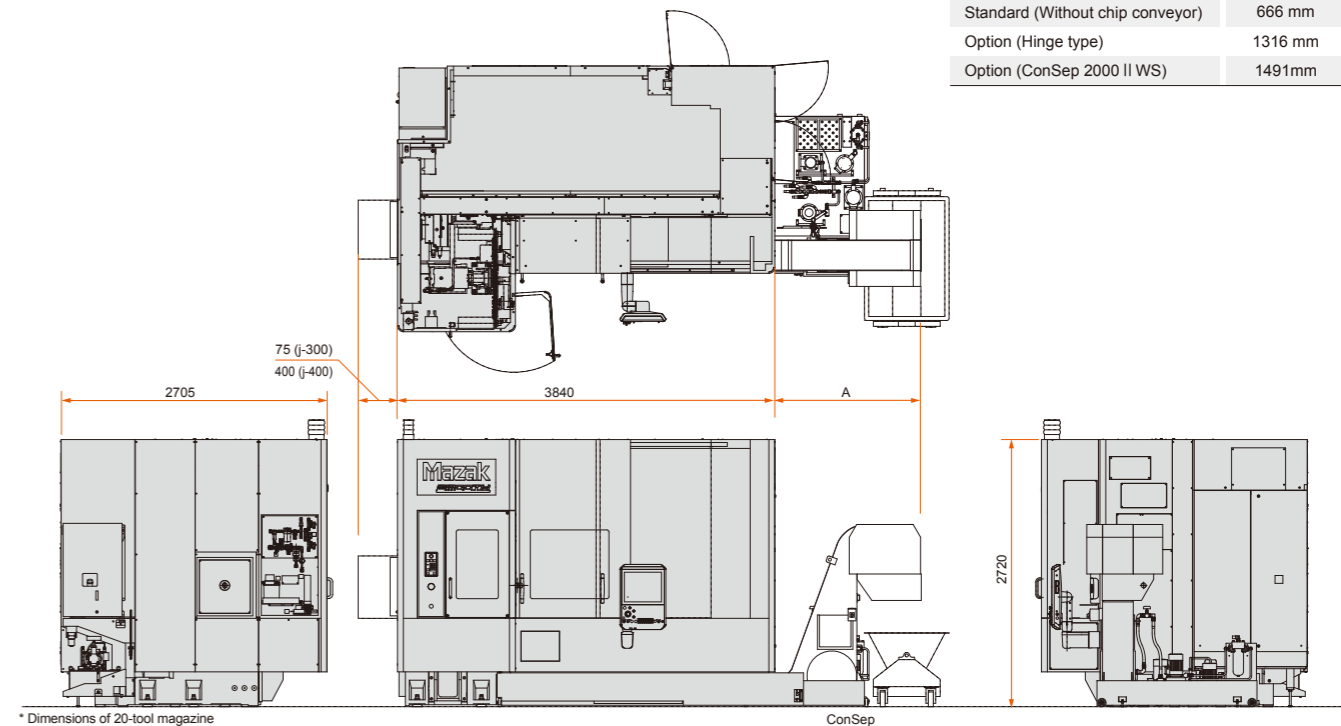


\* Dimensions of 20-tool magazine

ConSep

INTEGREX j-300 [650U], j-400 [650U]

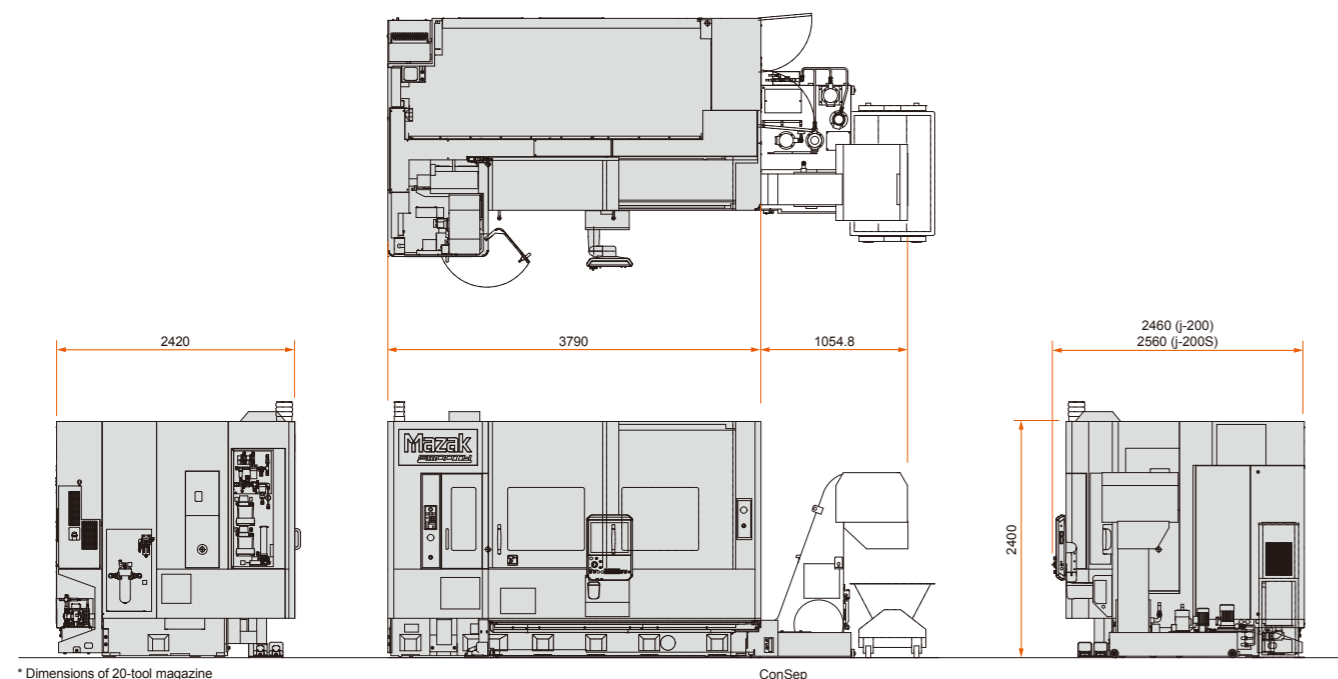
Specifications	A
Standard (Without chip conveyor)	666 mm
Option (Hinge type)	1316 mm
Option (ConSep 2000 II WS)	1491mm



\* Dimensions of 20-tool magazine

ConSep

INTEGREX j-200 [1000U], j-200S

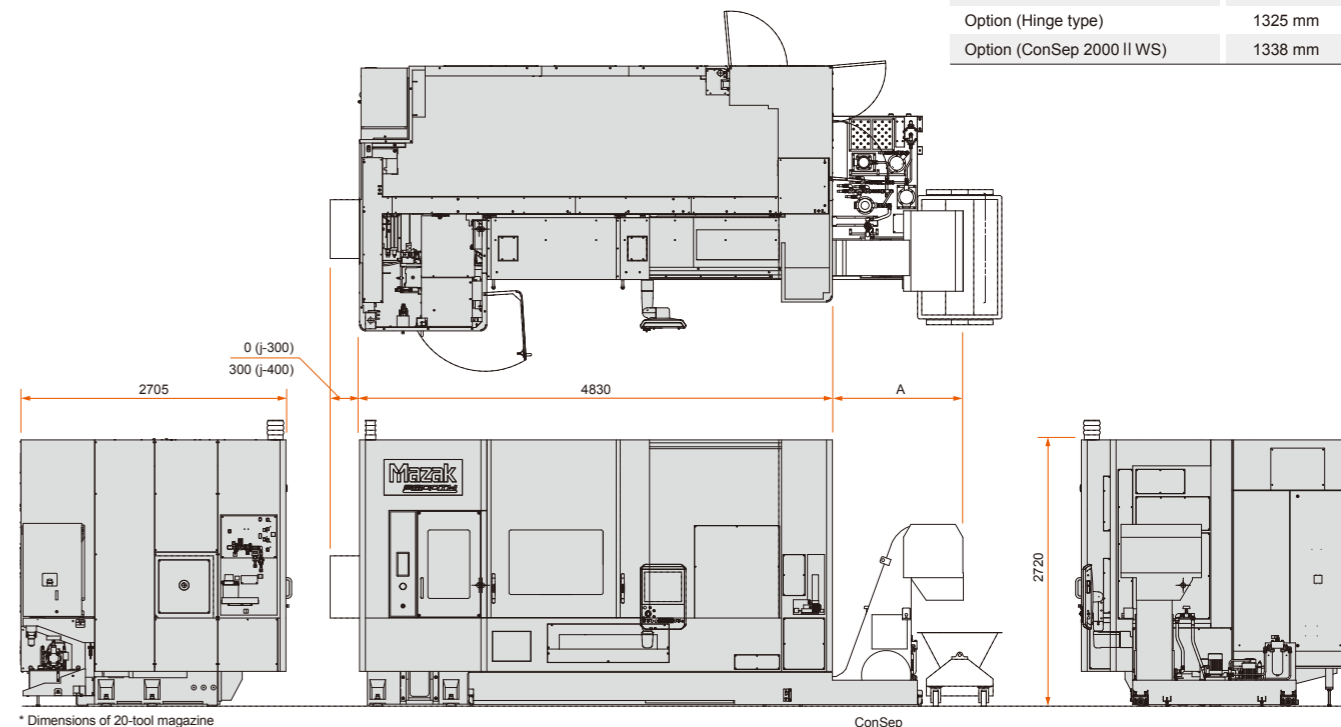


\* Dimensions of 20-tool magazine

ConSep

INTEGREX j-300 [1200U], j-400 [1200U]

Specifications	A
Standard (Without chip conveyor)	756 mm
Option (Hinge type)	1325 mm
Option (ConSep 2000 II WS)	1338 mm



\* Dimensions of 20-tool magazine

ConSep