Mazak

INTEGREX i-H SERIES

Mazak

INTEGREX i-H

SERIES

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INTEGREX i-H SERIES .21.03 0 GH 99J1A8820E1

INTEGREX i-H SERIES

Multi-tasking machines with AI, digital twin technology and automation transform manufacturing sites

The transformation of production processes utilizing data and digital technology is progressing rapidly in the manufacturing sector.
Mazak's new INTEGREX i-H series has been developed to take a production site to the next level.
The evolution of these multi-tasking machines provides highly efficient digital manufacturing solutions that incorporate AI and digital twin technology to respond quickly to ever-changing production demands.

INTEGREX i-200H S

Shown with optional equipment

INTEGREX i-450H S

Shown with optional equipment

MAZATROL SMOOTH Ai

Shown with optional MAZATROL SmoothAi dual monitor

Ai

- Optimum programming by AI analysis
- High quality and high accuracy machining ensured

DIGITAL TWIN

- MAZATROL TWINS software utilizing digital twin technology performs digital setup in an office
- Reduce setup time for machine, and improve efficiency for machining of initial product and prototype

AUTOMATION

- The latest automated system with articulated robot

Mazak AUTO FLEX CELL (option)

Next generation multi-tasking machine

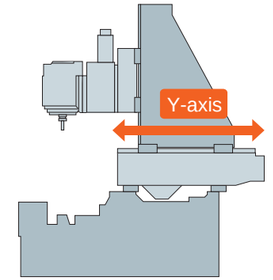
Enhanced mechanical performance and machine structure that is designed to easily integrate with automation

Improved machine performance

- Front of the machine adopts a flat design to easily incorporate automation systems
- Large Y-axis strokes for expanded machining capability
- Wide variety of turning and milling spindle specifications available
- Available with the second spindle and lower turret for process integration
- The compact 20,000 rpm high speed spindle (option) has improved output and torque, enabling high speed machining of aluminum.
- Factory automation equipment – Gantry loader, bar feeders and automatic jaw changer (i-250H, i-350H, i-450H) – for enhanced productivity

The machine structure incorporates a turning and machining center to ensure high accuracy machining

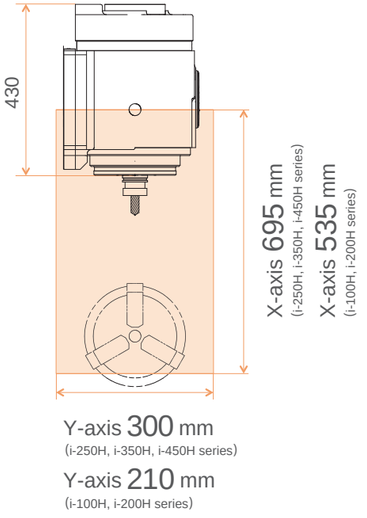
Based on structural analysis, the best mechanical structure, combining both the turning and machining center, has been newly designed to perform long-term, stable high-precision machining which ensures highly accurate positioning and machining over the entire Y-axis stroke.



Compact milling spindle and large machining area with minimum interference

The newly designed compact milling spindle (standard specification) that has a total length 17% shorter than that of the conventional milling spindle, expands the machining area with minimum interference as well as large X- and Y-axis stroke. The large machining area provides excellent performance over a wide range of applications, such as machining by special tools that requires large stroke.

	i-100H, i-200H series	i-250H, i-350H, i-450H series
Large Y-axis stroke	210 mm	300 mm (Compared to conventional models: Larger by 15%)
Large machining area Max. swing / max. machining diameter	Φ600 mm	Φ670 mm
Large tool size	300 mm	400 mm



Increased multi-tasking versatility through the INTEGREX evolution

The INTEGREX series has been designed not only to reduce lead time, but also to meet requirements such as the machining of large diameter long workpieces to machining of difficult-to-cut materials and automation.

INTEGREX i-H HISTORY

1983 SLANT TURN 40N ATC

MAZATROL CAM T-3 CNC

1988 INTEGREX 40 ATC

Milling capacity
11 kW (15 HP) (30 min. rating)
MAZATROL T-32-3 CNC

1997 INTEGREX 200Y

Spindle turret
B-axis
MAZATROL FUSION640MT CNC (since 1998)

2000 INTEGREX 200-IISY

Milling spindle 10000 rpm
C-axis contouring

2002 INTEGREX 200-II

Milling spindle 12000 rpm
B-axis and C-axis contouring
MAZATROL FUSION640MT Pro CNC

2005 INTEGREX 200-II

MAZATROL Matrix CNC

2010 INTEGREX i-200

Long Y-axis stroke
B-axis 0.0001° indexing
MAZATROL Matrix CNC

2014 INTEGREX i-200

MAZATROL SmoothX CNC

2019 INTEGREX i-200H

Next generation multi-tasking machine

MAZATROL SmoothAi CNC

Higher accuracy

Ai Thermal Shield

New algorithms automatically determine the amount of compensation to be applied according to changes in the temperature to ensure even higher machining accuracy.

Designed for higher speed and higher accuracy

High rigidity and high accuracy C-axis disk brake

C-axis disk brake ensures high accuracy machining with powerful and evenly distributed force. The main spindle can be indexed 0.0001° degree increments. Compensation can be also performed at 0.0001° degree increments for high accuracy positioning.

B-axis roller gear cam

Roller gear cam on the B-axis eliminates backlash for high rigidity and high power cutting.
High accuracy B-axis positioning
min. indexing increment : 0.0001°
B-axis scale feedback - standard equipment

Linear roller guides

The rigid linear roller guides utilized by the INTEGREX i-H series on all linear axes provide improved positioning accuracy with lower friction.

Heat displacement control

Spindle temperature control

For high accuracy machining, temperature controlled cooling oil is circulated around the spindle bearings and headstock to minimize any thermal change to the spindle.

X-,Y-, Z-axis ball screw core cooling

Temperature controlled cooling oil circulates through the ball screw cores to ensure stable machining accuracy over extended periods of high speed operation.

Higher Productivity & Higher Accuracy

Milling spindle

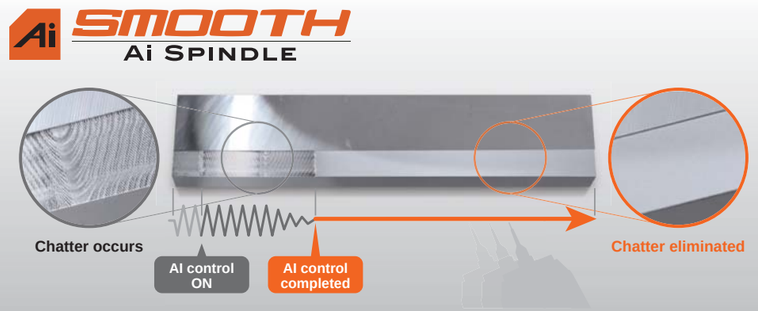
The compact milling spindle with automatic tool changer enlarges the machining area and minimizes interference.
The 12000 rpm spindle can perform high efficiency machining of steel and castings.
Optional 20000 rpm spindle is designed for high speed machining of aluminium and small diameter machining.
A wide variety of spindle specifications meet production requirements.

■ Milling spindle speed

12000 rpm STANDARD High-performance spindle suitable for machining a wide range of applications	12 kW（16 HP）(40% ED)	i-100H, i-200H series
	24 kW（32 HP）(40% ED)	i-250H, i-350H, i-450H series
12000 rpm high output spindle OPTION High torque spindle ideal for machining of difficult to cut materials that require high torque	24 kW（32 HP）(40% ED)	i-100H, i-200H series
20000 rpm high speed spindle OPTION High output, high speed spindle ideal for machining of aluminum and small diameter drilling	24 kW（32 HP）(40% ED)	i-100H, i-200H, i-250H, i-350H, i-450H series

Smooth Ai Spindle　OPTION

Using AI, milling spindle vibration is detected and machining conditions are automatically changed to produce unsurpassed surface finishes and high productivity. Thanks to AI,adjustments can be easily made in a short time without a skilled operator.



Main spindle

Powerful turning spindle

The integral spindle / motor has no gears or belts that can cause vibration to ensure excellent finished surfaces as well as high reliability.
The powerful, high torque INTEGREX i-H series integral spindle / motor design provides fast machining cycle times.

INTEGREX i-100H, i-100H S, i-100H ST

Spindle speed	6000 rpm
Spindle output (40% ED / con. rating)	11 kW（15 HP）/ 7.5 kW（10 HP）
Max. torque (40% ED)	159 N·m

INTEGREX i-200H, i-200H S, i-200H ST
INTEGREX i-250H, i-250H S, i-250H ST

Spindle speed	5000 rpm
Spindle output (40% ED / con. rating)	22 kW（30 HP）/ 15 kW（20 HP）
Max. torque (40% ED)	350 N·m

INTEGREX i-350H, i-350H S, i-350H ST

Spindle speed	4000 rpm
Spindle output (40% ED / con. rating)	30 kW（40 HP）/ 22 kW（30 HP）
Max. torque (40% ED)	724 N·m

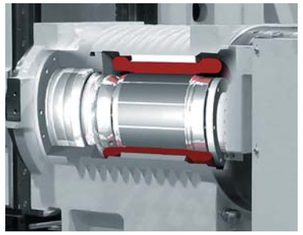
INTEGREX i-450H, i-450H S, i-450H ST

Spindle speed	3300 rpm
Spindle output (40% ED / con. rating)	37 kW（50 HP）/ 30 kW（40 HP）
Max. torque (40% ED)	1200 N·m

Second spindle

High-speed integral / spindle motor

Perform continuous machining of first and second processes. Rotation of first and second spindles can be synchronized for the in-phase radial positioning of a workpiece feature in the first and second processes.



INTEGREX i-100H S, i-100H ST

Spindle speed	6000 rpm
Spindle output (40% ED / con. rating)	11 kW（15 HP）/ 7.5 kW（10 HP）
Max. torque (40% ED)	143 N·m

INTEGREX i-200H S, i-200H ST
INTEGREX i-250H S, i-250H ST

Spindle speed	5000 rpm
Spindle output (40% ED / con. rating)	18.5 kW（25 HP）/ 15 kW（20 HP）
Max. torque (40% ED)	325 N·m

INTEGREX i-350H S, i-350H ST
INTEGREX i-450H S, i-450H ST

Spindle speed	4000 rpm
Spindle output (40% ED / con. rating)	26 kW（35 HP）/ 22 kW（30 HP）
Max. torque (40% ED)	500 N·m

Higher Productivity

NC tailstock

The operator can set the tailstock position on the setup screen and move the tailstock to another position by menu-key or M-code.

i-100H	Tailstock center (dead center): MT No.4 Max. thrust : 2 kN (203 kgf)
i-200H	Tailstock center (dead center): MT No.5 Max. thrust : 7 kN (713 kgf)
i-250H	Tailstock center (built-in center): MT No.5 Max. thrust : 7 kN (713 kgf)
i-350H i-450H	Tailstock center (built-in center): MT No.5 Max. thrust : 10 kN (1019 kgf)

Tool magazine

The tool magazine with a storage capacity of 38 tools (option : 74 tools, 112 tools) is located at the rear of the machine.
In addition to the standard HSK-A63 (T63) — CAPTO C6 and KM4X63 tool shank specifications are optionally available.

Tool holder shank
HSK-A63（T63） (option: CAPTO C6, KM4X63)

Convenient tool magazine access at the front of the machine

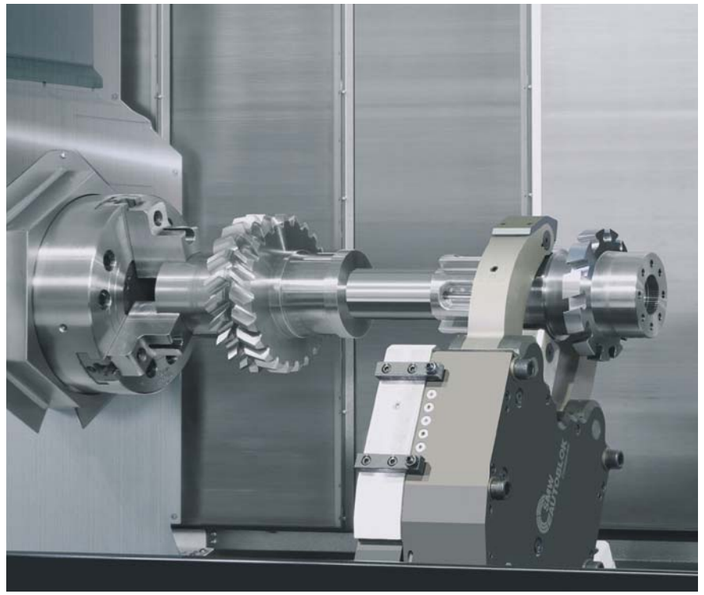
The tool magazine is located at the front of the machine eliminating the time required for the operator to go back and forth to the rear of the machine for higher efficiency (standard) .
By shortening the operator's walking distance, work efficiency is increased.

	i-100H, i-200H series	i-250H, i-350H, i-450H series
Max. tool length	300 mm	400 mm
Max. tool diameter	Φ90 mm Φ130 mm (when adjacent pockets empty)	Φ90 mm Φ130 mm (when adjacent pockets empty)
Max. tool weight	5 kg	12 kg

Automatic steady rest

OPTION

A variety of steady rests are available for high accuracy and efficient machining of long shaft workpieces.



i-250H, i-250H S（1500U）

Steady rest manufacturer / model	Gripping diameter
SMW SLU-X2	Φ8～Φ101 mm

i-350H, i-350H S, i-450H, i-450H S（1500U）

Steady rest manufacturer / model	Gripping diameter
SMW SLU-X2	Φ8～Φ101 mm
SMW SLU-X3	Φ12～Φ152 mm
SMW SLU-X3.1	Φ20～Φ165 mm
SMW SLU-X3.2	Φ50～Φ200 mm
SMW K4	Φ52～Φ280 mm

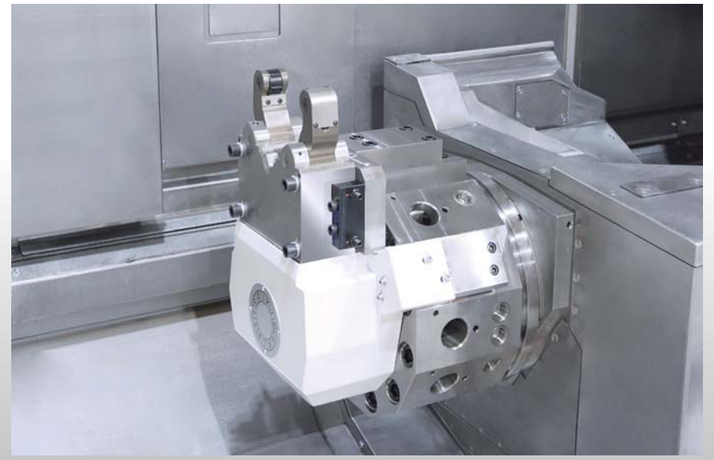
i-350H, i-350H S, i-450H, i-450H S（2500U）

Steady rest manufacturer / model	Gripping diameter
SMW SLU-X2	Φ8～Φ101 mm
SMW SLU-X3	Φ12～Φ152 mm
SMW SLU-X3.1	Φ20～Φ165 mm
SMW SLU-X3.2	Φ50～Φ200 mm
SMW K4	Φ52～Φ280 mm
SMW K4.1	Φ90～Φ330 mm

Steady rest mounted on orthogonal lower turret

OPTION

The steady rest is mounted on the orthogonal lower turret to expand machining versatility and increase efficiency of set up.

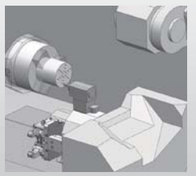


i-100H ST, i-200H ST
i-250H ST, i-350H ST, i-450H ST

Steady rest manufacturer / model	Gripping diameter
SMW SLU-X1	Φ6~Φ70 mm

i-250H ST, i-350H ST, i-450H ST

Steady rest manufacturer / model	Gripping diameter
SMW SLU-X2	Φ8~Φ101 mm



Turret rotation can be performed with the steady rest
(The number of mounting tools is limited)

Higher Productivity

2 types of lower turret are available to meet a wide variety of production requirements. High rigidity lower turret performs from turning to milling. Cycle time can be reduced by continuous machining performed by the main and second spindle.

Orthogonal lower turret

Selectable

Orthogonal lower turret performs a wide range of applications, such as balance cutting for improved finished surface and machining with long boring bar and steady rest.
Lower turret can be mounted up to 12 rotary tools and performs 10000 rpm high speed machining.
It reduces chip accumulation for automatic operation over extend periods of time.

Lower turret standard specifications

12 position drum turret for expanded range of machining

Turret type		12 position drum turret
Number of tools		12 tools
Tool size	i-100H ST i-200H ST	Turning tool □20 mm Boring bar Φ32 mm
	i-250H ST i-350H ST i-450H ST	Turning tool □25 mm Boring bar Φ32 mm
Turret indexing		0.19 sec. / 1 step

Lower turret with rotary tools

OPTION

Improved productivity thanks to new rotary tools

Number of tools		12 tools (Max. 12 rotary tools)
Max. milling spindle speed		10000 rpm
Milling spindle power (25% ED)	i-100H ST i-200H ST	AC 5.5 kW (7.5 HP)
Milling spindle power (40% ED)	i-250H ST i-350H ST i-450H ST	AC 7.5 kW (10 HP)
Max. torque (25% ED)	i-100H ST i-200H ST	30 N･m (3.0 kgf･m)
Max. torque (10% ED)	i-250H ST i-350H ST i-450H ST	47.7 N･m (4.9 kgf･m)
Tool size	i-100H ST i-200H ST	Drill Φ16 mm Tap M16
	i-250H ST i-350H ST i-450H ST	Drill Φ20 mm Tap M20

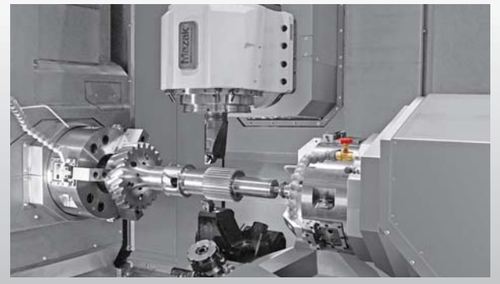
Application examples of orthogonal type lower turret

Long boring bar

Effective in boring deep holes in large workpieces

Balance cut

Reduced machining time, high accuracy machining, and improved finished surface are ensured.



Slant lower turret

Selectable

The same tool mounted on the lower turret can be used for machining on both the main and second spindles thanks to the unique turret design that reduces the required number of tools. In addition, same machining program used by the INTEGREX i series can be perfomed by the INTEGREX i-H series.

Lower turret standard specifications

［i-100H ST, i-200H ST, i-250H ST, i-350H ST, i-450H ST］

9 position drum turret for expanded machining versatility

Turret type		9 position drum turret
Number of tools		9 tools
Tool size	i-100H ST i-200H ST	Turning tool □20 mm Boring bar Φ32 mm
	i-250H ST i-350H ST i-450H ST	Turning tool □25 mm Boring bar Φ32 mm
Turret indexing		0.14 sec. / 1 step

Lower turret with rotary tools

OPTION

［i-250H ST, i-350H ST, i-450H ST］

Rotary tools can be mounted on the lower turret

Number of tools	9 tools (Max. 6 rotary tools)
Max. milling spindle speed	6000 rpm
Milling spindle power (40% ED)	AC 1.4 kW（2 HP）
Max. torque (10% ED)	18 N·m (1.8 kgf·m)
Tool size	Drill Φ14 mm Tap M12

Application example of slant type lower turret

Simultaneous machining

Simultaneous machining with two tools can be performed by the milling spindle and lower turret.
This is effective for unmanned operation when either a gantry loader or gantry robot is used.

Automation

Mazak AUTO FLEX CELL — OPTION

The self propelled articulated robot and stockers are compactly located in front of the machine to automate various setup operations, such as loading and unloading workpieces, supply chuck jaws and exchanging special tools. Mazak AUTO FLEX CELL can be retro-fitted even after the machine has been installed.

SMOOTH RCC

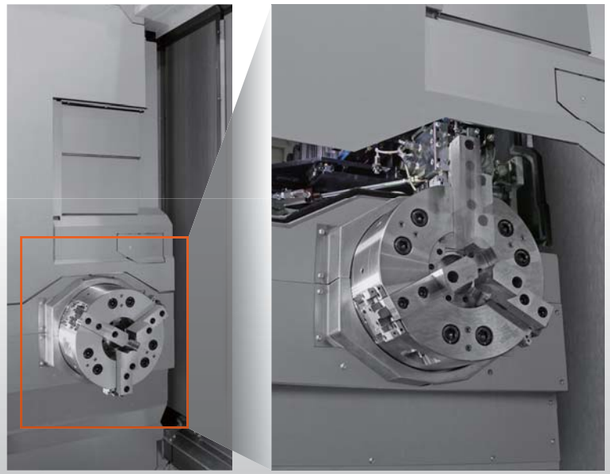
Smooth RCC is management software for the robot cell, which can perform high-mix, low-volume production. This provides a convenient display of operation programming, operation status and production scheduling to the operator on the optional CNC dual monitor.

Auto jaw changer — OPTION

With the new auto jaw changer, 10 sets of chuck jaws can be automatically changed for the main and second spindles. The operator can change the chuck jaws at the auto jaw changer magazine door which is located at the front of the machine during machining. The automatic chuck jaw can be changed by the robot.

* Not applicable to INTEGREX i-100H and i-200H series

Applicable spindles	Main and second spindles
Number of stored chucks	10 sets each



Gantry loader system — OPTION

The unique structure of the gantry loader system comprises a compact overall height which reduces work loading / unloading time and allows automatic operations to be performed over extended periods of time. The workpiece conveyor can be installed on machine right or left side and multiple machines can also be connected. A wide variety of specifications of workpiece hand and workpiece conveyor are available to meet production requirements.
A gantry loader system can be installed after the INTEGREX i-H installation by a simple retrofit.

Bar feeder — OPTION

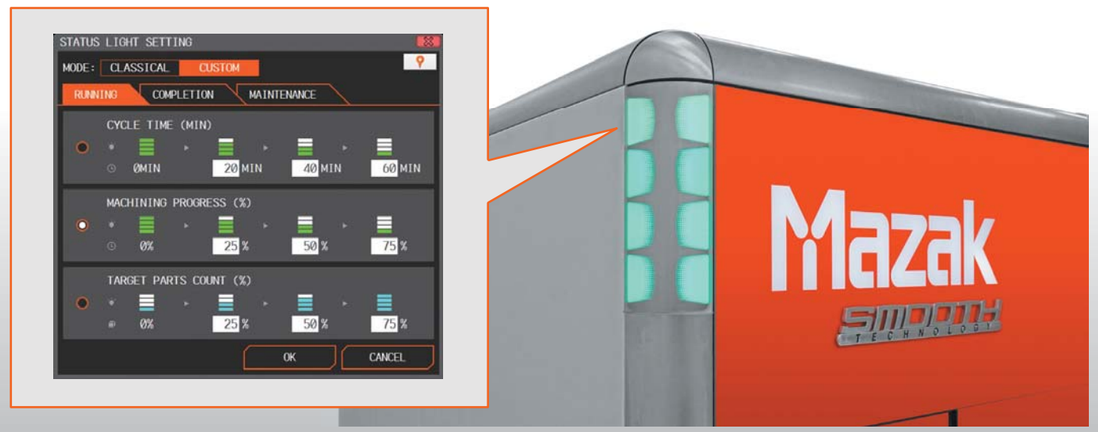
A bar feeder can easily be used with the INTEGREX i-H series. A bar feed interface is available for most of the widely used systems. Optional bar feeder scheduling for high-mix, low-volume production and set production is available.

Ergonomics

Unsurpassed ease of operation and maintenance thanks to a new focus on machine ergonomics

Machine lights to monitor machining status

Status lights have been built into the left side corner as standard equipment to display machining completion and alarm.
On the CNC display ,operators can customize the illumination of 4 lights to indicate machine status and machining progress.



Designed for ease of operation

The INTEGREX i-H series is designed so that the center-line height and the distance from the front cover to the machine center line provide convenient workpiece loading and unloading.

Large window

The large front door window allows workpiece machining to be easily monitored by the operator.

Minimum spindle center line height

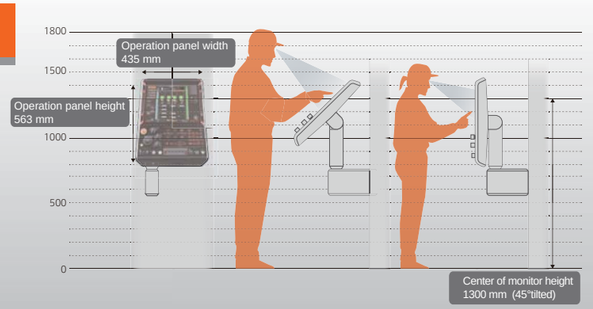
For ease of loading / unloading workpiece and machine setup.

Wide door opening and convenient access for overhead crane

For ease of operation when loading / unloading workpieces, the wide door opening provides excellent access when using an overhead crane.

Adjustable CNC touch panel

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



Innovation for Higher Productivity

MAZATROL SMOOTH Ai

New MAZATROL SmoothCNC

Designed to provide unsurpassed productivity through even faster and higher precision control while elevating your production to the next level with AI and digital twin technology

- Touch screen operation — similar to using your smartphone / tablet
- MAZATROL Smooth graphical user interface for unsurpassed ease of operation
- CNC System integrates with your Windows® PC
- Latest hardware and software for unprecedented speed and precision
- Higher machining speed for high accuracy 5-axis machining
- Fine tuning function- easy machining parameter setting for various workpieces
- MAZATROL TWINS - software that enables real-time sharing and centralized management of various data for increase productivity

■ AI

Increase your productivity with AI technology

■ Digital Twin

Create a virtual machine on your office PC for efficient setup and improved productivity

■ Automation

Advanced automation utilizing robot and software

Shown with optional MAZATROL SmoothAi dual monitor

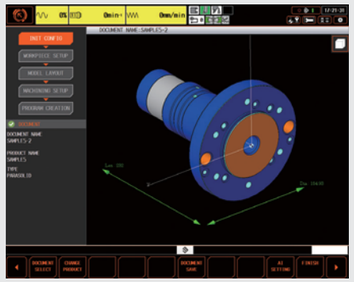
Innovative functions for higher productivity

Innovative functions to improve productivity from programming to machining

Automatic programming

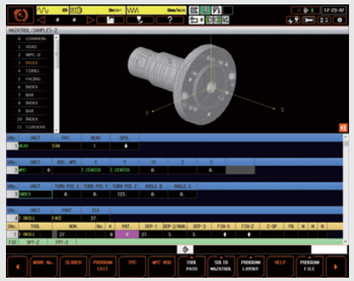
Solid MAZATROL

A program is automatically generated from 3D CAD data. AI learning utilizes the machining know-how from the programs created in the past, automatically calculates the machining process, generating the optimal program.



Import 3D CAD model

Required time for programming 2.5 min.



MAZATROL programming completed

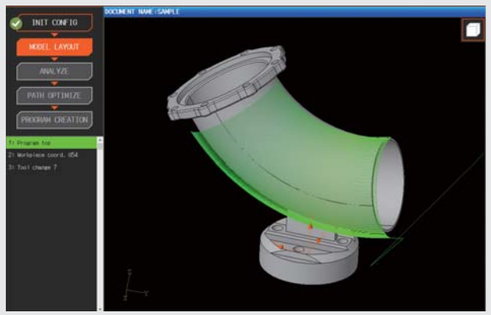
Simulation, Test cutting (machining analysis·optimization)

Cutting Adviser

Cutting adviser optimizes machining conditions by machining simulation and visualization of machining process from accumulated machining results.

SMC PLUS OPTION

Compares the cutting point of the EIA program with the 3D model so the correct command point can be changed to ensure the correct tool path and high accuracy finished surfaces.



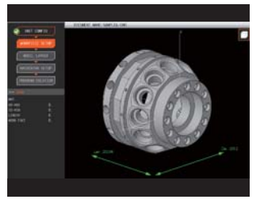
Advanced digital technology for manufacturing

MAZATROL TWINS (software) for high productivity OPTION

Virtual machines in your office accurately duplicate the operation of machines on your factory floor. Available software can be used together with machines equipped with the MAZATROL SmoothAi CNC to substantially increase the efficiency of your production.

Smooth CAM Ai

Programs can be made and edited, as well as performing simulation and analysis on the Smooth CAM Ai for multiple machines.



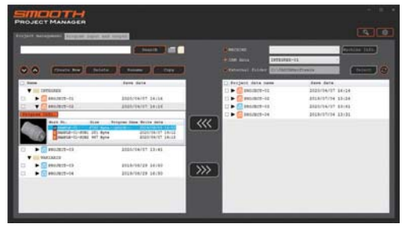
AI programming

Fast simulation

Machining analysis･Optimization

Smooth Project Manager

Smooth Project Manager is used to manage the project data of the entire factory. The data can be synchronized between the machine in the factory and the PC in the office.



Smooth Tool Management

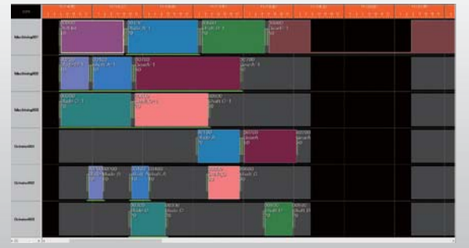
The Smooth Tool Management software manages data of the large number of tools in use by a factory for higher productivity.

Smooth Monitor AX･Smooth Link

Machine status information is collected from the whole plant and is accumulated for production results, as well as production analysis.

Smooth Scheduler

Smooth Scheduler is software to create effective machining schedules utilizing production data. Schedules are displayed for convenient monitoring of production progress.

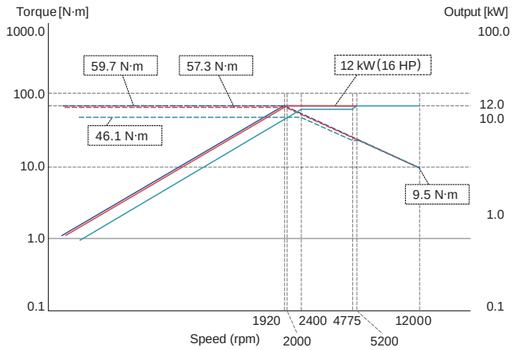


■ Milling spindle output / torque diagrams

Output [kW] (15% ED) — Output [kW] (40% ED) — Output [kW] (con.rating) — Torque [N·m] (15% ED) — Torque [N·m] (40% ED) — Torque [N·m] (con.rating)

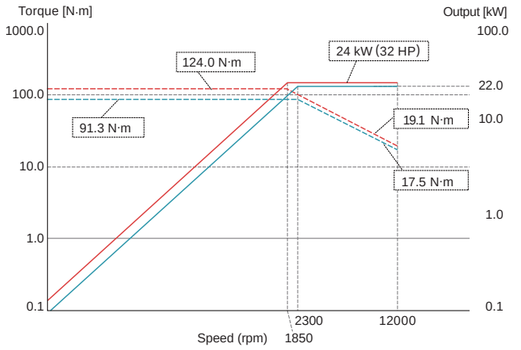
12000 rpm spindle

INTEGREX i-100H, i-200H series



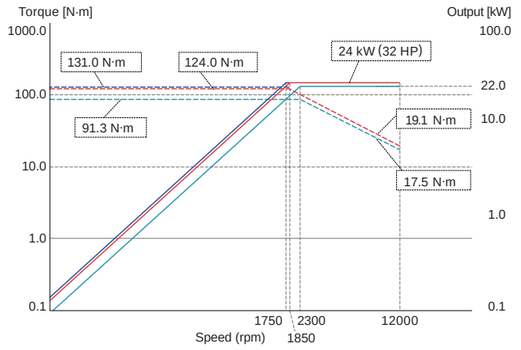
12000 rpm High output spindle OPTION

INTEGREX i-100H, i-200H series



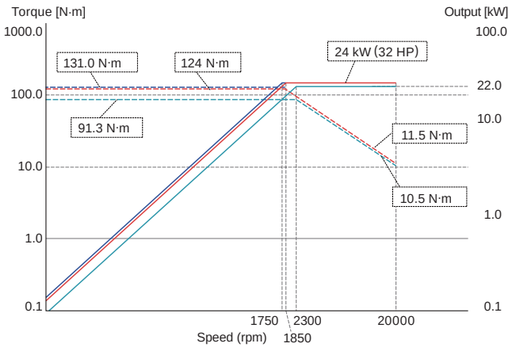
12000 rpm spindle

INTEGREX i-250H, i-350H, i-450H series



20000 rpm High-speed spindle OPTION

INTEGREX i-100H, i-200H, i-250H, i-350H, i-450H series



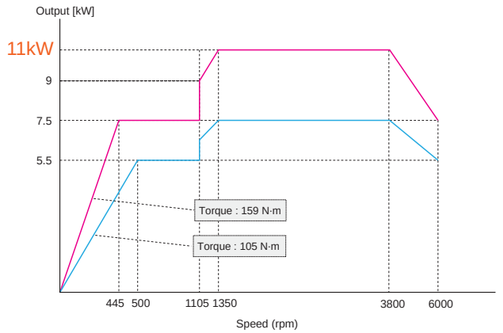
■ Main・Second spindle output / torque diagrams

Output [kW] (con.rating) — Output [kW] (40% ED)

Main spindle

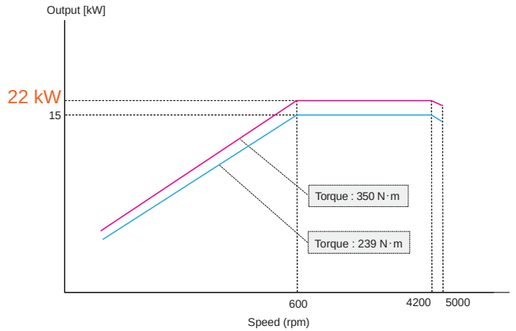
INTEGREX i-100H, 100H S, 100H ST

Main spindle speed 6000 rpm
Main spindle power 11 kW (15 HP) (40% ED) 7.5 kW (10 HP) (con.rating)
Max. torque 159 N・m (40% ED)



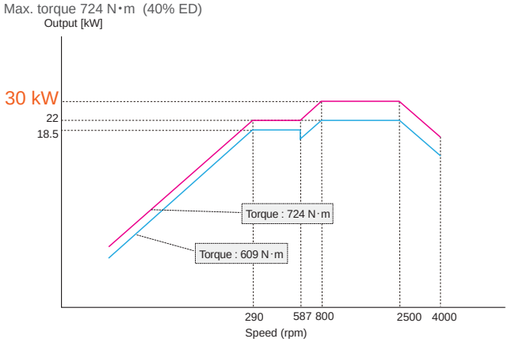
INTEGREX i-200H, 200H S, 200H ST
INTEGREX i-250H, 250H S, 250H ST

Main spindle speed 5000 rpm
Main spindle power 22 kW (30 HP) (40% ED) 15 kW (20 HP) (con.rating)
Max. torque 350 N・m (40% ED)



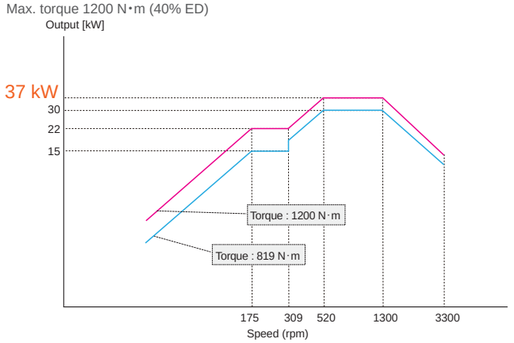
INTEGREX i-350H, 350H S, 350H ST

Main spindle speed 4000 rpm
Main spindle power 30 kW (40 HP)(40% ED) 22 kW (30 HP) (con.rating)
Max. torque 724 N・m (40% ED)



INTEGREX i-450H, 450H S, 450H ST

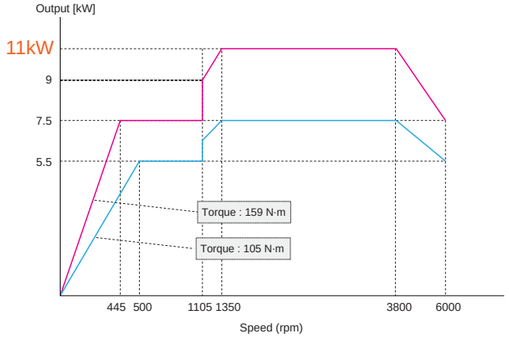
Main spindle speed 3300 rpm
Main spindle power 37 kW (50 HP) (40% ED) 30 kW (40 HP) (con.rating)
Max. torque 1200 N・m (40% ED)



Second spindle

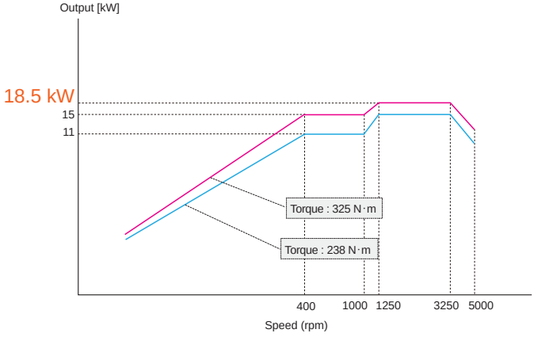
INTEGREX i-100H S, 100H ST

Second spindle speed 6000 rpm
Second spindle power 11 kW (15 HP) (40% ED) 7.5 kW (10 HP) (con.rating)
Max. torque 159 N・m (40% ED)



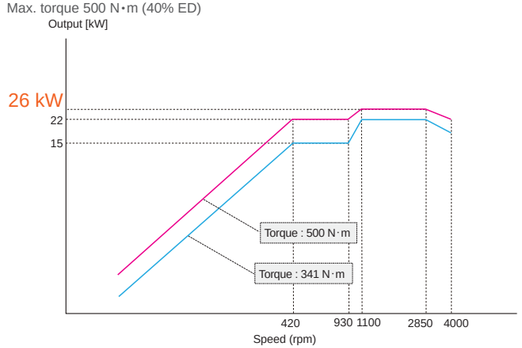
INTEGREX i-200H S, 200H ST
INTEGREX i-250H S, 250H ST

Second spindle speed 5000 rpm
Second spindle power 18.5 kW (25 HP) (40% ED) 15 kW (20 HP) (con.rating)
Max. torque 325 N・m (40% ED)



INTEGREX i-350H S, 350H ST
INTEGREX i-450H S, 450H ST

Second spindle speed 4000 rpm
Second spindle power 26kW (35 HP) (40% ED) 22 kW (30 HP) (con.rating)
Max. torque 500 N・m (40% ED)



■ Standard Machine Specifications

		i-100H	i-100H S	i-100H ST
		590U	850U	850U
Capacity	Max. swing	Φ600 mm		
	Max. machining diameter (upper turret)	Φ600 mm		
	(lower turret)	—		Φ400 mm
	Max. machining length*1	590 mm	850 mm	
	Max. bar work capacity*1	Φ52 mm		
Travel	X-axis travel	535 mm		
	Z-axis travel	640 mm	900 mm	
	Y-axis travel	210 mm		
	X2-axis travel (lower turret)	—		210 mm
	Z2-axis travel (lower turret)	—		900 mm
	B-axis indexing range	-30° ～ +210°		
Main spindle	Chuck size	6"		
	Main spindle speed*1	6000 rpm		
	Main spindle nose	A2-5		
	Main spindle bore	Φ61 mm		
	Bearing ID	Φ90 mm		
	Min. indexing increment	0.0001°		
Second spindle	Chuck size	—	6"	
	Second spindle speed*1	—	6000 rpm	
	Second spindle travel (W-axis)	—	900 mm	
	Second spindle nose	—	A2-5	
	Second spindle bore	—	Φ61 mm	
	Bearing ID	—	Φ90 mm	
	Min. indexing increment	—	0.0001°	
Milling spindle	Milling spindle type	Spindle turret with ATC		
	Milling spindle speed	12000 rpm		
	Max. milling spindle torque (40% ED)	57.3 N·m		
	Turning tool shank height	25 mm		
	Boring bar shank diameter	Φ40 mm		
	Min. B-axis indexing increment	0.0001°		
Lower turret*2	Turret type	—		12 position drum turret
	Number of tools	—		12
	Turning tool shank height	—		20 mm
	Boring bar shank diameter	—		Φ32 mm
Feedrate	Rapid traverse rate : X-axis	48 m/min		
	Rapid traverse rate : Z-axis	40 m/min		
	Rapid traverse rate : Y-axis	40 m/min		
	Rapid traverse rate : X2-axis	—		40 m/min
	Rapid traverse rate : Z2-axis	—		40 m/min
	Rapid traverse rate : W-axis	8 m/min	30 m/min	
Automatic tool changer system	Tool holder shank	HSK-A63 (T63)		
	Tool storage capacity	38 tools		
	Max. tool diameter / length (from gauge line)	Φ90 mm (when adjacent pockets empty : Φ130 mm) / 300 mm		
	Max. tool weight	5 kg		
	Tool selection method	Random selection, shortest path (fixed pocket assignment)		
Motors	Spindle motor (40% ED / cont. rating)	11 kW (15 HP) / 7.5 kW (10 HP)		
	Second spindle motor (40% ED / cont. rating)	—	11 kW (15 HP) / 7.5 kW (10 HP)	
	Milling spindle motor (40% ED / cont. rating)	12 kW (16 HP) / 11 kW (15 HP)		
Power requirement	Required power capacity (cont. rating)	27.50 kVA	33.27 kVA	41.29 kVA
	Air source	0.5 MPa (5 kgf/cm²), 500 L/min	0.5 MPa (5 kgf/cm²), 510 L/min	0.5 MPa (5 kgf/cm²), 830 L/min
Coolant	Tank capacity	270 L		300 L
Machine size	Machine height	2250 mm		2500 mm
	Width × length	3415 mm × 2170 mm		
	Weight	9930 kg	10830 kg	11530 kg
Sound	Equivalent continuous sound pressure level at operator position (dependant on equipment options)	Less than 80 dB (A)		

*1 Depends on chuck specifications
*2 Orthogonal lower turret specification

		i-200H	i-200H S	i-200H ST
		590U	850U	850U
Capacity	Max. swing	Φ600 mm		
	Max. machining diameter (upper turret)	Φ600 mm		
	(lower turret)	—		Φ400 mm
	Max. machining length*1	590 mm	850 mm	
	Max. bar work capacity*1	Φ65 mm		
Travel	X-axis travel	535 mm		
	Z-axis travel	640 mm	900 mm	
	Y-axis travel	210 mm		
	X2-axis travel (lower turret)	—		210 mm
	Z2-axis travel (lower turret)	—		900 mm
	B-axis indexing range	-30° ～ +210°		
Main spindle	Chuck size	8"		
	Main spindle speed*1	5000 rpm		
	Main spindle nose	A2-6		
	Main spindle bore	Φ76 mm		
	Bearing ID	Φ120 mm		
	Min. indexing increment	0.0001°		
Second spindle	Chuck size	—	8"	
	Second spindle speed*1	—	5000 rpm	
	Second spindle travel (W-axis)	—	900 mm	
	Second spindle nose	—	A2-6	
	Second spindle bore	—	Φ76 mm	
	Bearing ID	—	Φ120 mm	
	Min. indexing increment	—	0.0001°	
Milling spindle	Milling spindle type	Spindle turret with ATC		
	Milling spindle speed	12000 rpm		
	Max. milling spindle torque (40% ED)	57.3 N·m		
	Turning tool shank height	25 mm		
	Boring bar shank diameter	Φ40 mm		
	Min. B-axis indexing increment	0.0001°		
Lower turret*2	Turret type	—		12 position drum turret
	Number of tools	—		12
	Turning tool shank height	—		20 mm
	Boring bar shank diameter	—		Φ32 mm
Feedrate	Rapid traverse rate : X-axis	48 m/min		
	Rapid traverse rate : Z-axis	40 m/min		
	Rapid traverse rate : Y-axis	40 m/min		
	Rapid traverse rate : X2-axis	—		40 m/min
	Rapid traverse rate : Z2-axis	—		40 m/min
	Rapid traverse rate : W-axis	8 m/min	30 m/min	
Automatic tool changer system	Tool holder shank	HSK-A63 (T63)		
	Tool storage capacity	38 tools		
	Max. tool diameter / length (from gauge line)	Φ90 mm (when adjacent pockets empty : Φ130 mm) / 300 mm		
	Max. tool weight	5 kg		
	Tool selection method	Random selection, shortest path (fixed pocket assignment)		
Motors	Spindle motor (40% ED / cont. rating)	22 kW (30 HP) / 15 kW (20 HP)		
	Second spindle motor (40% ED / cont. rating)	—	18.5 kW (25 HP) / 15 kW (20 HP)	
	Milling spindle motor (40% ED / cont. rating)	12 kW (16 HP) / 11 kW (15 HP)		
Power requirement	Required power capacity (cont. rating)	33.23 kVA	54.41 kVA	57.42 kVA
	Air source	0.5 MPa (5 kgf/cm²), 500 L/min	0.5 MPa (5 kgf/cm²), 510 L/min	0.5 MPa (5 kgf/cm²), 830 L/min
Coolant	Tank capacity	270 L		300 L
Machine size	Machine height	2250 mm		2500 mm
	Width × length	3505 mm × 2170 mm		
	Weight	10780 kg	11130 kg	11830 kg
Sound	Equivalent continuous sound pressure level at operator position (dependant on equipment options)	Less than 80 dB (A)		

*1 Depends on chuck specifications
*2 Orthogonal lower turret specification

■ Standard Machine Specifications

		i-250H		i-250H S		i-250H ST
		1000U	1500U	1000U	1500U	1500U
Capacity	Max. swing	Φ670 mm				
	Max. machining diameter (upper turret)	Φ670 mm				
	(lower turret)	—				Φ420 mm
	Max. machining length*1	1011 mm	1519 mm	1011 mm	1519 mm	
	Max. bar work capacity*1	Φ65 mm				
Travel	X-axis travel	695 mm				
	Z-axis travel	1077 mm	1585 mm	1077 mm	1585 mm	
	Y-axis travel	300 mm				
	X2-axis travel (lower turret)	—				220 mm
	Z2-axis travel (lower turret)	—				1539 mm
	B-axis indexing range	-30° ～ +210°				
Main spindle	Chuck size	8"				
	Main spindle speed*1	5000 rpm				
	Main spindle nose	A2-6				
	Main spindle bore	Φ76 mm				
	Bearing ID	Φ120 mm				
	Min. indexing increment	0.0001°				
Second spindle	Chuck size	—		8"		
	Second spindle speed*1	—		5000 rpm		
	Second spindle travel (W-axis)	—		1061 mm	1569 mm	1539 mm
	Second spindle nose	—		A2-6		
	Second spindle bore	—		Φ76 mm		
	Bearing ID	—		Φ120 mm		
	Min. indexing increment	—		0.0001°		
Milling spindle	Milling spindle type	Spindle turret with ATC				
	Milling spindle speed	12000 rpm				
	Max. milling spindle torque (40% ED)	124 N·m				
	Turning tool shank height	25 mm				
	Boring bar shank diameter	Φ40 mm				
	Min. B-axis indexing increment	0.0001°				
Lower turret*2	Turret type	—				12 position drum turret
	Number of tools	—				12
	Turning tool shank height	—				25 mm
	Boring bar shank diameter	—				Φ32 mm
Feedrate	Rapid traverse rate : X-axis	50 m/min				
	Rapid traverse rate : Z-axis	50 m/min				
	Rapid traverse rate : Y-axis	40 m/min				
	Rapid traverse rate : X2-axis	—				40 m/min
	Rapid traverse rate : Z2-axis	—				40 m/min
	Rapid traverse rate : W-axis	8 m/min		30 m/min		
Automatic tool changer system	Tool holder shank	HSK-A63 (T63)				
	Tool storage capacity	38 tools				
	Max. tool diameter / length (from gauge line)	Φ90 mm (when adjacent pockets empty : Φ130 mm) / 400 mm				
	Max. tool weight	12 kg				
	Tool selection method	Random selection, shortest path (fixed pocket assignment)				
Motors	Spindle motor (40% ED / cont. rating)	22 kW (30 HP) / 15 kW (20 HP)				
	Second spindle motor (40% ED / cont. rating)	—		18.5 kW (25 HP) / 15 kW (20 HP)		
	Milling spindle motor (40% ED / cont. rating)	24 kW (32 HP) / 22 kW (30 HP)				
Power requirement	Required power capacity (cont. rating)	48.04 kVA		60.57 kVA		74.60 kVA
	Air source	0.5 MPa (5 kgf/cm²), 400 L/min				
Coolant	Tank capacity	395 L	490 L	395 L	490 L	
Machine size	Machine height	2715 mm				
	Width × length	4175 mm × 2700 mm	4995 mm × 2700 mm	4175 mm × 2700 mm	4995 mm × 2700 mm	
	Weight	13150 kg	13450 kg	13450 kg	13750 kg	16500 kg
Sound	Equivalent continuous sound pressure level at operator position (dependant on equipment options)	Less than 80 dB (A)				

*1 Depends on chuck specifications
*2 Orthogonal lower turret specification

		i-350H			i-350H S		i-350H ST
		1000U	1500U	2500U	1500U	2500U	1500U
Capacity	Max. swing	Φ670 mm					
	Max. machining diameter (upper turret)	Φ670 mm					
	(lower turret)	—					Φ420 mm
	Max. machining length*1	1011 mm	1519 mm	2500 mm	1519 mm	2500 mm	1519 mm
	Max. bar work capacity*1	Φ80 mm					
Travel	X-axis travel	695 mm					
	Z-axis travel	1077 mm	1585 mm	2566 mm	1585 mm	2566 mm	1585 mm
	Y-axis travel	300 mm					
	X2-axis travel (lower turret)	—					220 mm
	Z2-axis travel (lower turret)	—					1539 mm
	B-axis indexing range	-30° ～ +210°					
Main spindle	Chuck size	10"					
	Main spindle speed*1	4000 rpm					
	Main spindle nose	A2-8					
	Main spindle bore	Φ91 mm					
	Bearing ID	Φ130 mm					
	Min. indexing increment	0.0001°					
Second spindle	Chuck size	—			10"		
	Second spindle speed*1	—			4000 rpm		
	Second spindle travel (W-axis)	—			1569 mm	2175 mm	1539 mm
	Second spindle nose	—			A2-8		
	Second spindle bore	—			Φ91 mm		
	Bearing ID	—			Φ130 mm		
	Min. indexing increment	—			0.0001°		
Milling spindle	Milling spindle type	Spindle turret with ATC					
	Milling spindle speed	12000 rpm					
	Max. milling spindle torque (40% ED)	124 N·m					
	Turning tool shank height	25 mm					
	Boring bar shank diameter	Φ40 mm					
	Min. B-axis indexing increment	0.0001°					
Lower turret*2	Turret type	—					12 position drum turret
	Number of tools	—					12
	Turning tool shank height	—					25 mm
	Boring bar shank diameter	—					Φ32 mm
Feedrate	Rapid traverse rate : X-axis	50 m/min					
	Rapid traverse rate : Z-axis	50 m/min		40 m/min	50 m/min	40 m/min	50 m/min
	Rapid traverse rate : Y-axis	40 m/min					
	Rapid traverse rate : X2-axis	—					40 m/min
	Rapid traverse rate : Z2-axis	—					40 m/min
	Rapid traverse rate : W-axis	8 m/min			30 m/min	18 m/min	30 m/min
Automatic tool changer system	Tool holder shank	HSK-A63 (T63)					
	Tool storage capacity	38 tools					
	Max. tool diameter / length (from gauge line)	Φ90 mm (when adjacent pockets empty : Φ130 mm) / 400 mm					
	Max. tool weight	12 kg					
	Tool selection method	Random selection, shortest path (fixed pocket assignment)					
Motors	Spindle motor (40% ED / cont. rating)	30 kW (40 HP) / 22 kW (30 HP)					
	Second spindle motor (40% ED / cont. rating)	—			26 kW (35 HP) / 22 kW (30 HP)		
	Milling spindle motor (40% ED / cont. rating)	24 kW (32 HP) / 22 kW (30 HP)					
Power requirement	Required power capacity (cont. rating)	48.04 kVA		49.43 kVA	80.24 kVA	81.04 kVA	84.74 kVA
	Air source	0.5 MPa (5 kgf/cm²), 400 L/min					
Coolant	Tank capacity	395 L	490 L	624 L	490 L	624 L	490 L
Machine size	Machine height	2715 mm					
	Width × length	4175 mm × 2700 mm	4995 mm × 2700 mm	6070 mm ×2700 mm	4995 mm × 2700 mm	6070 mm ×2700 mm	4995 mm × 2700 mm
	Weight	13450 kg	13750 kg	17100 kg	14050 kg	17400 kg	16800 kg
Sound	Equivalent continuous sound pressure level at operator position (dependant on equipment options)	Less than 80 dB (A)					

*1 Depends on chuck specifications
*2 Orthogonal lower turret specification

■ Standard Machine Specifications

		i-450H			i-450H S		i-450H ST
		1000U	1500U	2500U	1500U	2500U	1500U
Capacity	Max. swing	Φ670 mm					
	Max. machining diameter (upper turret)	Φ670 mm					
	(lower turret)	—					Φ420 mm
	Max. machining length*1	1011 mm	1519 mm	2500 mm	1519 mm	2500 mm	1519 mm
	Max. bar work capacity*1	Φ102 mm					
Travel	X-axis travel	695 mm					
	Z-axis travel	1077 mm	1585 mm	2566 mm	1585 mm	2566 mm	1585 mm
	Y-axis travel	300 mm					
	X2-axis travel (lower turret)	—					220 mm
	Z2-axis travel (lower turret)	—					1539 mm
	B-axis indexing range	-30° ～ +210°					
Main spindle	Chuck size	12"					
	Main spindle speed*1	3300 rpm					
	Main spindle nose	A2-11					
	Main spindle bore	Φ112 mm					
	Bearing ID	Φ150 mm					
	Min. indexing increment	0.0001°					
Second spindle	Chuck size	—			10"		
	Second spindle speed*1	—			4000 rpm		
	Second spindle travel (W-axis)	—			1569 mm	2175 mm	1539 mm
	Second spindle nose	—			A2-8		
	Second spindle bore	—			Φ91 mm		
	Bearing ID	—			Φ130 mm		
	Min. indexing increment	—			0.0001°		
Milling spindle	Milling spindle type	Spindle turret with ATC					
	Milling spindle speed	12000 rpm					
	Max. milling spindle torque (40% ED)	124 N·m					
	Turning tool shank height	25 mm					
	Boring bar shank diameter	Φ40 mm					
	Min. B-axis indexing increment	0.0001°					
Lower turret*2	Turret type	—					12 position drum turret
	Number of tools	—					12
	Turning tool shank height	—					25 mm
	Boring bar shank diameter	—					Φ32 mm
Feedrate	Rapid traverse rate : X-axis	50 m/min					
	Rapid traverse rate : Z-axis	50 m/min		40 m/min	50 m/min	40 m/min	50 m/min
	Rapid traverse rate : Y-axis	40 m/min					
	Rapid traverse rate : X2-axis	—					40 m/min
	Rapid traverse rate : Z2-axis	—					40 m/min
	Rapid traverse rate : W-axis	8 m/min			30 m/min	18 m/min	30 m/min
Automatic tool changer system	Tool holder shank	HSK-A63 (T63)					
	Tool storage capacity	38 tools					
	Max. tool diameter / length (from gauge line)	Φ90 mm (when adjacent pockets empty : Φ130 mm) / 400 mm					
	Max. tool weight	12 kg					
	Tool selection method	Random selection, shortest path (fixed pocket assignment)					
Motors	Spindle motor (40% ED / cont. rating)	37 kW (50 HP) / 30 kW (40 HP)					
	Second spindle motor (40% ED / cont. rating)	—			26 kW (35 HP) / 22 kW (30 HP)		
	Milling spindle motor (40% ED / cont. rating)	24 kW (32 HP) / 22 kW (30 HP)					
Power requirement	Required power capacity (cont. rating)	59.15 kVA		60.81 kVA	91.33 kVA	92.40 kVA	95.91 kVA
	Air source	0.5 MPa (5 kgf/cm²), 400 L/min					
Coolant	Tank capacity	395 L	490 L	624 L	490 L	624 L	490 L
Machine size	Machine height	2715 mm					
	Width × length	4175 mm × 2700 mm	4995 mm × 2700 mm	6070 mm ×2700 mm	4995 mm × 2700 mm	6070 mm ×2700 mm	4995 mm × 2700 mm
	Weight	13750 kg	14050 kg	17400 kg	14350 kg	17700 kg	17100 kg
Sound	Equivalent continuous sound pressure level at operator position (dependant on equipment options)	Less than 80 dB (A)					

*1 Depends on chuck specifications
*2 Orthogonal lower turret specification

■ MAZATROL SmoothAi Specifications

	MAZATROL	EIA
Number of controlled axes	Simultaneous 2 ~ 4 axes	Simultaneous 5 axes*
Least input increment	0.0001 mm, 0.00001 inch, 0.0001 deg	
High speed, high precision control	Shape compensation, Smooth corner control, Rapid traverse overlap, Rotary axis shape compensation	Shape compensation, Smooth corner control, Rapid traverse overlap, Rotary axis shape compensation, High-speed machining mode, High-speed smoothing control, 5-axis spline*, Path error suppression control*, Tool path optimization*
Interpolation	Positioning (interpolation), Positioning (non-interpolation),Linear interpolation, Circular interpolation, Cylindrical interpolation, Polar coordinate interpolation, Constant lead threading, Re-threading*, Thread start point compensation*, Thread cut-speed override*, Synchronous tapping*	Positioning (interpolation), Positioning (non-interpolation), Linear interpolation, Circular interpolation, Spiral interpolation, Helical interpolation, Constant lead threading, Variable lead threading, Threading (C-axis interpolation type), Cylindrical interpolation*, Involute interpolation*, Fine spline interpolation*, NURBS interpolation*, Polar coordinate interpolation*, Re-threading*, Thread start point compensation*, Thread cut-speed override*, Synchronous tapping*
Feedrate	Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Dwell (time / rotation), Rapid traverse override, Cutting feed override, G0 speed variable control , Feedrate limitation, Variable acceleration control, G0 slope constant*	Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Inverse time feed, Dwell (time / rotation), Rapid traverse override, Cutting feed override, G0 speed variable control , Feedrate limitation, Time constant changing for G1, Variable acceleration control, G0 slope constant*
Program registration	Number of programs : 256 (Standard) / 960 (Max.), Program memory : 2 MB, Program memory expansion : 8 MB*, Program memory expansion : 32 MB*	
Control display	Display : 19" touch panel, Resolution : SXGA	
Spindle function	S code output, Spindle speed limitation, Spindle speed override, Spindle speed reaching detection, Multiple position orient, Constant surface speed, Spindle speed command with decimal digits, Synchronized spindle control, Spindle speed range setting	
Tool functions	Number of tool offset : 4000, T code output for tool number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces), Tool life monitoring (wear)	Number of tool offset : 4000, T code output for tool number, T code output for group number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces), Tool life monitoring (wear)
Miscellaneous functions	M code output, Simultaneous output of multiple M codes	
Tool offset functions	Tool position offset, Tool length offset, Tool diameter / tool nose R offset, Tool nose shape offset, Tool wear offset, Fixed amount offset, Simple wear offset	Tool position offset, Tool length offset, Tool diameter / tool nose R offset, Tool wear offset, Fixed amount offset, Simple wear offset
Coordinate system	Machine coordinate system, Work coordinate system, Local coordinate system, Additional work coordinates (300 set)	
Machine functions	–	Rotary axis prefilter, Tilted working plane, Polygonal machining*, Hobbing II*, Shaping function*, Dynamic compensation II*, Tool center point control*, Tool radius compensation for 5-axis machining*, Workpiece positioning error compensation*, 5-axis tool length compensation*, 5-axis parameter select*
Machine compensation	Backlash compensation, Pitch error compensation, Geometric deviation compensation, Ai Thermal shield, Volumetric compensation*	
Protection functions	Emergency stop, Interlock, Pre-move stroke check, Barrier, 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, Manual handle interruption, MDI interruption, TPS, Restart, Single process, Machine lock	Optional block skip, Optional stop, Dry run, Manual handle interruption, MDI interruption,TPS, Restart, Restart 2, Collation stop, Machine lock
Manual measuring functions	Tool-setting data teach, Tool length teach, Touch sensor coordinates measurement, Workpiece offset measurement, WPC coordinate measurement, Measurement on machine, Tool eye measurement	Tool-setting data teach, Tool length teach, Tool offset teach, Touch sensor coordinates measurement, Workpiece offset measurement, Measurement on machine,Tool eye measurement
Automatic measuring functions	WPC coordinate measurement, Automatic tool length measurement , Laser tool length / diameter measurement, Workpiece measurement , Sensor calibration, Tool eye auto tool measurement, Tool breakage detection,	Automatic tool length measurement, Laser tool length / diameter measurement, Workpiece measurement, Sensor calibration, Tool eye auto tool measurement, Tool breakage detection
MDI measurement	Coordinate measurement, Laser measurement	
Peripheral network	PROFIBUS-DP*, EtherNet/IP*, CC-Link*	
Memory	SD card interface, USB	
EtherNet	10 M / 100 M / 1 Gbps	

*Option

■ Standard and Optional Equipment

INTEGREX i-100H series
INTEGREX i-200H series

●: Standard ○: Option -: N/A

		i-100H			i-200H		
			S	ST		S	ST
Machine	Main spindle 0.0001° indexing / C-axis control	●	●	●	●	●	●
	Second spindle 0.001° indexing (without C-axis)	—	●	●	—	●	●
	Second spindle 0.0001° indexing / C-axis control / synchronization function	—	○	○	—	○	○
	12D orthogonal lower turret*1	—	—	●	—	—	●
	Lower turret with rotary tools	—	—	○	—	—	○
	Main spindle hydraulic chuck (6" non through-hole chuck)	●	○	○	—	—	—
	Main spindle hydraulic chuck (6" through-hole chuck)	○	●	●	—	—	—
	Main spindle hydraulic chuck (6" through-hole chuck with 5 jaws)	○	○	○	—	—	—
	Main spindle hydraulic chuck (Φ100mm collet chuck)	○	○	○	—	—	—
	Second spindle hydraulic chuck (6" through-hole chuck + non-through-hole cylinder)	—	●	●	—	—	—
	Main spindle hydraulic chuck (8" non through-hole chuck)	—	—	—	●	○	○
	Main spindle hydraulic chuck (8" through-hole chuck)	—	—	—	○	●	●
	Main spindle hydraulic chuck (10" non through-hole chuck)	—	—	—	○	○	○
	Main spindle hydraulic chuck (10" through-hole chuck)	—	—	—	○	○	○
	Second spindle hydraulic chuck (8" through-hole chuck + non-through-hole cylinder)	—	—	—	—	●	●
	Second spindle hydraulic chuck (10" through-hole chuck + non-through-hole cylinder)	—	—	—	—	○	○
	Workpiece stopper inside spindle (i-100)	○	○	○	○	○	○
	Y-axis control	●	●	●	●	●	●
	B-axis 0.0001° indexing / contouring (EIA)	●	●	●	●	●	●
	Milling spindle 12000 rpm (HSK-A63)	●	●	●	●	●	●
	Milling spindle 12000 rpm (CAPTO C6 / KM4X-63)	○	○	○	○	○	○
	Milling spindle 20000 rpm (HSK-T63 / CAPTO C6 / KM4X-63)	○	○	○	○	○	○
	High output milling spindle 12000 rpm (HSK-A63 / CAPTO C6 / KM4X-63)	○	○	○	○	○	○
	38 tool magazine (HSK)	●	●	●	●	●	●
	38 tool magazine (CAPTO / KM4X)	○	○	○	○	○	○
	74 tool magazine (HSK / CAPTO / KM4X)	○	○	○	○	○	○
	112 tool magazine (HSK / CAPTO / KM4X)	○	○	○	○	○	○
	Tailstock MT No.4 (dead center)	●	—	—	—	—	—
	Tailstock MT No.5 (dead center)	—	—	—	●	—	—
	Tailstock MT No.4 (built-in)	—	—	—	○	—	—
	Work light	●	●	●	●	●	●
	High / Low chuck pressure (main spindle)	○	○	○	○	○	○
	High / Low chuck pressure (second spindle)	—	○	○	—	○	○
	Double foot pedal switch	●	●	●	●	●	●
	Status light (built-in)	●	●	●	●	●	●
	3 color machine status light (square)	○	○	○	○	○	○
	1 color machine status light (yellow : operation end / square)	○	○	○	○	○	○
	1 color machine status light (red : alarm / square)	○	○	○	○	○	○
High accuracy	X-axis, Y-axis, Z-axis ball screw core cooling	●	●	●	●	●	●
	Mazak monitoring system B (RMP 60)	○	○	○	○	○	○
	Preparation for Mazak monitoring system B (RMP 60)	○	○	○	○	○	○
	Scale feedback (B-axis)	●	●	●	●	●	●
	Scale feedback (X-, Y-, Z-axis)	○	○	○	○	○	○
	Scale feedback (X2-axis for lower turret)	—	—	●	—	—	●
	Scale feedback (Z2-axis for lower turret)	—	—	○	—	—	○
	Absolute position detection (linear axis)	●	●	●	●	●	●
Safety equipment	Hydraulic pressure interlock	●	●	●	●	●	●
	Operator door interlock	●	●	●	●	●	●
	Overload detection system	○	○	○	○	○	○
	Tool breakage detection on magazine side	○	○	○	○	○	○
Factory automation	Tool eye (upper turret / automatic)	●	●	●	●	●	●
	Tool eye (lower turret / automatic)	—	—	●	—	—	●
	Automatic chuck jaw open / close	●	●	●	●	●	●
	Chuck jaw open / close confirmation	●	●	●	●	●	●
	Automatic opening / closing front door	○	○	○	○	○	○
	Automatic power ON / OFF + warm-up system	●	●	●	●	●	●
	Machining end buzzer	○	○	○	○	○	○
	Preparation for visual tool ID / data management	○	○	○	○	○	○
	Robot interface	○	○	○	○	○	○
Coolant / Chip disposal	Cover coolant	●	●	●	●	●	●
	Flood coolant	●	●	●	●	●	●
	Simultaneous discharge of 0.5 MPa (5 kgf/cm^2) coolant through spindle and flood coolant (upper turret)	●	●	●	●	●	●
	Simultaneous discharge of 1.5 MPa (15 kgf/cm^2) high pressure coolant through spindle and flood coolant (upper turret)	○	○	○	○	○	○
	Simultaneous discharge of 7.0MPa (70 kgf/cm^2) SUPERFLOW coolant system and 0.5 MPa (5 kgf/cm^2) flood coolant (upper turret)	○	○	○	○	○	○
	Flood coolant for lower turret	—	—	●	—	—	●
	Shower coolant (main spindle side)	○	○	○	○	○	○
	Shower coolant (second spindle side)	○	○	○	○	○	○
	Oil skimmer	○	○	○	○	○	○
	Coolant temperature control	○	○	○	○	○	○
	Mist collector	○	○	○	○	○	○
	Coolant & air blast for chuck jaws (main spindle)	○	○	○	○	○	○
	Air blast through spindle	○	○	○	○	○	○
	Air blast for chuck jaws (main spindle)	○	○	○	○	○	○
	Air blast for chuck jaws (second spindle)	—	●	●	—	●	●
	Preparation for chip conveyor (side disposal / hinge)	●	●	●	●	●	●
	Preparation for chip conveyor (side disposal / ConSep)	○	○	○	○	○	○
	Chip conveyor (side disposal / hinge)	○	○	○	○	○	○
	Chip conveyor (side disposal / ConSep)	○	○	○	○	○	○
	Chip bucket (rotating)	○	○	○	○	○	○
	Chip bucket (fixed)	○	○	○	○	○	○
Others	Manuals (CD)	●	●	●	●	●	●
	Additional manuals (CD or paper)	○	○	○	○	○	○
	MAZATROL SmoothAi dual monitor	○	○	○	○	○	○

*1 9D lower turret (slant type) available

INTEGREX i-250H series

●: Standard ○: Option -: N/A

		i-250H		
			S	ST
Machine	Main spindle 0.0001° indexing / C-axis control	●	●	●
	Second spindle 0.001° indexing (without C-axis)	—	●	●
	Second spindle 0.0001° indexing / C-axis control / synchronization function	—	○	○
	12D orthogonal lower turret*1	—	—	●
	Lower turret with rotary tools	—	—	○
	Main spindle hydraulic chuck (8" through-hole chuck)	●	●	●
	Main spindle hydraulic chuck (10" through-hole chuck)	○	○	○
	Second spindle hydraulic chuck (8" through-hole chuck + non-through-hole cylinder)	—	●	●
	Second spindle hydraulic chuck (10" through-hole chuck + non-through-hole cylinder)	—	○	○
	Workpiece stopper inside spindle	○	○	○
	Y-axis control	●	●	●
	B-axis 0.0001° indexing / contouring (EIA)	●	●	●
	Milling spindle 12000 rpm (HSK-A63)	●	●	●
	Milling spindle 12000 rpm (CAPTO C6 / KM4X-63)	○	○	○
	Milling spindle 20000 rpm (HSK-T63 / CAPTO C6 / KM4X-63)	○	○	○
	38 tool magazine (HSK)	●	●	●
	38 tool magazine (CAPTO / KM4X)	○	○	○
	74 tool magazine (HSK / CAPTO / KM4X)	○	○	○
	112 tool magazine (HSK / CAPTO / KM4X)	○	○	○
	Tailstock MT No.5 (built-in)	●	—	—
	Work light	●	●	●
	High / Low chuck pressure (main spindle)	○	○	○
	High / Low chuck pressure (second spindle)	—	○	○
	Double foot pedal switch	●	●	●
	Status light (built-in)	●	●	●
	3 color machine status light (square)	○	○	○
	1 color machine status light (yellow : operation end / square)	○	○	○
	1 color machine status light (red : alarm / square)	○	○	○
High accuracy	X-axis, Y-axis, Z-axis ball screw core cooling	●	●	●
	Mazak monitoring system B (RMP 60)	○	○	○
	Preparation for Mazak monitoring system B (RMP 60)	○	○	○
	Scale feedback (B-axis)	●	●	●
	Scale feedback (X-, Y-, Z-axis)	○	○	○
	Scale feedback (X2-axis for lower turret)	—	—	●
	Scale feedback (Z2-axis for lower turret)	—	—	○
	Absolute position detection (linear axis)	●	●	●
Safety equipment	Hydraulic pressure interlock	●	●	●
	Operator door interlock	●	●	●
	Overload detection system	○	○	○
	Tool breakage detection on magazine side	○	○	○
Factory automation	Tool eye (upper turret / automatic)	●	●	●
	Tool eye (lower turret / automatic)	—	—	●
	Automatic chuck jaw open / close	●	●	●
	Chuck jaw open / close confirmation	●	●	●
	Automatic opening / closing front door	○	○	○
	Automatic power ON / OFF + warm-up system	●	●	●
	Machining end buzzer	○	○	○
	Preparation for visual tool ID / data management	○	○	○
	Robot interface	○	○	○
Coolant / Chip disposal	Cover coolant	●	●	●
	Flood coolant	●	●	●
	Simultaneous discharge of 0.5 MPa (5 kgf/cm^2) coolant through spindle and flood coolant (upper turret)	●	●	●
	Simultaneous discharge of 1.5 MPa (15 kgf/cm^2) high pressure coolant through spindle and flood coolant (upper turret)	○	○	○
	Simultaneous discharge of 7.0MPa (70 kgf/cm^2) SUPERFLOW coolant system and 0.5 MPa (5 kgf/cm^2) flood coolant (upper turret)	○	○	○
	Flood coolant for lower turret	—	—	●
	Shower coolant (main spindle side)	○	○	●
	Shower coolant (second spindle side)	○	○	○
	Oil skimmer	○	○	○
	Coolant temperature control	○	○	○
	Mist collector	○	○	○
	Coolant & air blast for chuck jaws (main spindle)	○	○	○
	Air blast through spindle	○	○	○
	Air blast for chuck jaws (main spindle)	○	○	○
	Air blast for chuck jaws (second spindle)	—	●	●
	Preparation for chip conveyor (side disposal / hinge)	●	●	●
	Preparation for chip conveyor (side disposal / ConSep)	○	○	○
	Chip conveyor (side disposal / hinge)	○	○	○
	Chip conveyor (side disposal / ConSep)	○	○	○
	Chip bucket (rotating)	○	○	○
	Chip bucket (fixed)	○	○	○
Others	Manuals (CD)	●	●	●
	Additional manuals (CD or paper)	○	○	○
	MAZATROL SmoothAi dual monitor	○	○	○

*1 9D lower turret (slant type) available

■ Standard and Optional Equipment

INTEGREX i-350H series

●: Standard ○: Option -: N/A

		i-350H	S	ST
Machine	Main spindle 0.0001° indexing / C-axis control	●	●	●
	Second spindle 0.001° indexing (without C-axis)	—	●	●
	Second spindle 0.0001° indexing / C-axis control / synchronization function	—	○	○
	12D orthogonal lower turret*1	—	—	●
	Lower turret with rotary tools	—	—	○
	Main spindle hydraulic chuck (10" through-hole chuck)	●	●	●
	Main spindle hydraulic chuck (12" through-hole chuck)	○	○	○
	Second spindle hydraulic chuck (10" through-hole chuck + non-through-hole cylinder)	—	●	●
	Second spindle hydraulic chuck (12" through-hole chuck + non-through-hole cylinder)	—	○	○
	Workpiece stopper inside spindle	○	○	○
	Y-axis control	●	●	●
	B-axis 0.0001° indexing / contouring (EIA)	●	●	●
	Milling spindle 12000 rpm (HSK-A63)	●	●	●
	Milling spindle 12000 rpm (CAPTO C6 / KM4X-63)	○	○	○
	Milling spindle 20000 rpm (HSK-T63 / CAPTO C6 / KM4X-63)	○	○	○
	38 tool magazine (HSK)	●	●	●
	38 tool magazine (CAPTO / KM4X)	○	○	○
	74 tool magazine (HSK / CAPTO / KM4X)	○	○	○
	112 tool magazine (HSK / CAPTO / KM4X)	○	○	○
	Tailstock MT No.5 (built-in)	●	—	—
	Work light	●	●	●
	High / Low chuck pressure (main spindle)	○	○	○
	High / Low chuck pressure (second spindle)	—	○	○
	Double foot pedal switch	●	●	●
	Status light (built-in)	●	●	●
	3 color machine status light (square)	○	○	○
	1 color machine status light (yellow : operation end / square)	○	○	○
	1 color machine status light (red : alarm / square)	○	○	○
High accuracy	X-axis, Y-axis, Z-axis ball screw core cooling	●	●	●
	Mazak monitoring system B (RMP 60)	○	○	○
	Preparation for Mazak monitoring system B (RMP 60)	○	○	○
	Scale feedback (B-axis)	●	●	●
	Scale feedback (X-, Y-, Z-axis)	○	○	○
	Scale feedback (X2-axis for lower turret)	—	—	●
	Scale feedback (Z2-axis for lower turret)	—	—	○
	Absolute position detection (linear axis)	●	●	●
Safety equipment	Hydraulic pressure interlock	●	●	●
	Operator door interlock	●	●	●
	Overload detection system	○	○	○
	Tool breakage detection on magazine side	○	○	○

*1 9D lower turret (slant type) available

		i-350H	S	ST
Factory automation	Tool eye (upper turret / automatic)	●	●	●
	Tool eye (lower turret / automatic)	—	—	●
	Automatic chuck jaw open / close	●	●	●
	Chuck jaw open / close confirmation	●	●	●
	Automatic opening / closing front door	○	○	○
	Automatic power ON / OFF + warm-up system	●	●	●
	Machining end buzzer	○	○	○
	Preparation for visual tool ID / data management	○	○	○
	Robot interface	○	○	○
Coolant / Chip disposal	Cover coolant	●	●	●
	Flood coolant	●	●	●
	Simultaneous discharge of 0.5 MPa (5 kgf/cm^2) coolant through spindle and flood coolant (upper turret)	●	●	●
	Simultaneous discharge of 1.5 MPa (15 kgf/cm^2) high pressure coolant through spindle and flood coolant (upper turret)	○	○	○
	Simultaneous discharge of 7.0MPa (70 kgf/cm^2) SUPERFLOW coolant system and 0.5 MPa (5 kgf/cm^2) flood coolant (upper turret)	○	○	○
	Flood coolant for lower turret	—	—	●
	Shower coolant (main spindle side)	○	○	●
	Shower coolant (second spindle side)	○	○	○
	Oil skimmer	○	○	○
	Coolant temperature control	○	○	○
	Mist collector	○	○	○
	Coolant & air blast for chuck jaws (main spindle)	○	○	○
	Air blast through spindle	○	○	○
	Air blast for chuck jaws (main spindle)	○	○	○
	Air blast for chuck jaws (second spindle)	—	●	●
	Preparation for chip conveyor (side disposal / hinge)	●	●	●
	Preparation for chip conveyor (side disposal / ConSep)	○	○	○
	Chip conveyor (side disposal / hinge)	○	○	○
	Chip conveyor (side disposal / ConSep)	○	○	○
	Chip bucket (rotating)	○	○	○
	Chip bucket (fixed)	○	○	○
Others	Manuals (CD)	●	●	●
	Additional manuals (CD or paper)	○	○	○
	MAZATROL SmoothAi dual monitor	○	○	○

INTEGREX i-450H series

●: Standard ○: Option -: N/A

		i-450H	S	ST
Machine	Main spindle 0.0001° indexing / C-axis control	●	●	●
	Second spindle 0.001° indexing (without C-axis)	—	●	●
	Second spindle 0.0001° indexing / C-axis control / synchronization function	—	○	○
	12D orthogonal lower turret *1	—	—	●
	Lower turret with rotary tools	—	—	○
	Main spindle hydraulic chuck (12" through-hole chuck)	●	●	●
	Main spindle hydraulic chuck (15" through-hole chuck)	○	○	○
	Second spindle hydraulic chuck (10" through-hole chuck + non-through-hole cylinder)	—	●	●
	Second spindle hydraulic chuck (12" through-hole chuck + non-through-hole cylinder)	—	○	○
	Workpiece stopper inside spindle	○	○	○
	Y-axis control	●	●	●
	B-axis 0.0001° indexing / contouring (EIA)	●	●	●
	Milling spindle 12000 rpm (HSK-A63)	●	●	●
	Milling spindle 12000 rpm (CAPTO C6 / KM4X-63)	○	○	○
	Milling spindle 20000 rpm (HSK-T63 / CAPTO C6 / KM4X-63)	○	○	○
	38 tool magazine (HSK)	●	●	●
	38 tool magazine (CAPTO / KM4X)	○	○	○
	74 tool magazine (HSK / CAPTO / KM4X)	○	○	○
	112 tool magazine (HSK / CAPTO / KM4X)	○	○	○
	Tailstock MT No.5 (built-in)	●	—	—
	Work light	●	●	●
	High / Low chuck pressure (main spindle)	○	○	○
	High / Low chuck pressure (second spindle)	—	○	○
	Double foot pedal switch	●	●	●
	Status light (built-in)	●	●	●
	3 color machine status light (square)	○	○	○
	1 color machine status light (yellow : operation end / square)	○	○	○
	1 color machine status light (red : alarm / square)	○	○	○
High accuracy	X-axis, Y-axis, Z-axis ball screw core cooling	●	●	●
	Mazak monitoring system B (RMP 60)	○	○	○
	Preparation for Mazak monitoring system B (RMP 60)	○	○	○
	Scale feedback (B-axis)	●	●	●
	Scale feedback (X-, Y-, Z-axis)	○	○	○
	Scale feedback (X2-axis for lower turret)	—	—	●
	Scale feedback (Z2-axis for lower turret)	—	—	○
	Absolute position detection (linear axis)	●	●	●
Safety equipment	Hydraulic pressure interlock	●	●	●
	Operator door interlock	●	●	●
	Overload detection system	○	○	○
	Tool breakage detection on magazine side	○	○	○

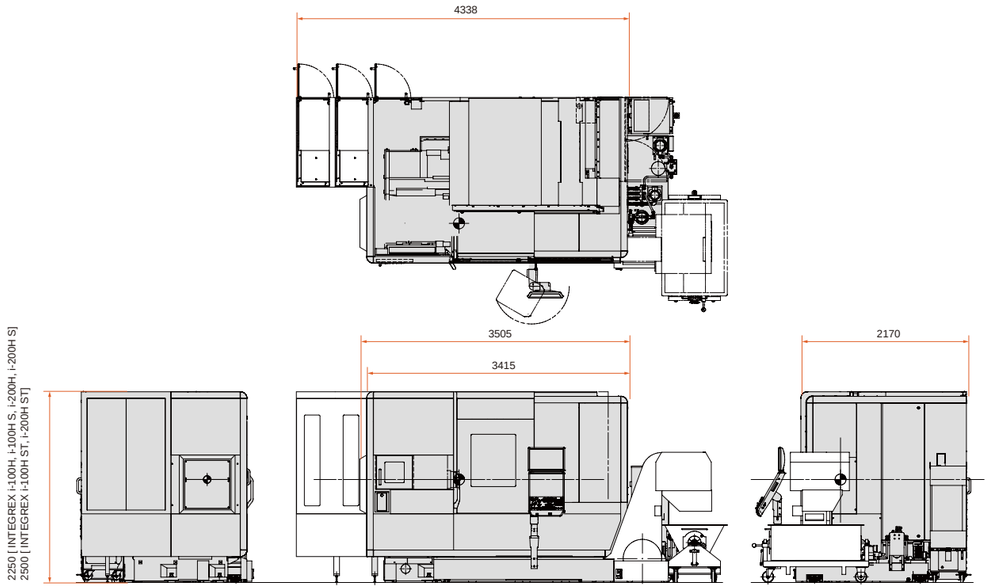
*1 9D lower turret (slant type) available

		i-450H	S	ST
Factory automation	Tool eye (upper turret / automatic)	●	●	●
	Tool eye (lower turret / automatic)	—	—	●
	Automatic chuck jaw open / close	●	●	●
	Chuck jaw open / close confirmation	●	●	●
	Automatic opening / closing front door	○	○	○
	Automatic power ON / OFF + warm-up system	●	●	●
	Machining end buzzer	○	○	○
	Preparation for visual tool ID / data management	○	○	○
	Robot interface	○	○	○
Coolant / Chip disposal	Cover coolant	●	●	●
	Flood coolant	●	●	●
	Simultaneous discharge of 0.5 MPa (5 kgf/cm^2) coolant through spindle and flood coolant (upper turret)	●	●	●
	Simultaneous discharge of 1.5 MPa (15 kgf/cm^2) high pressure coolant through spindle and flood coolant (upper turret)	○	○	○
	Simultaneous discharge of 7.0MPa (70 kgf/cm^2) SUPERFLOW coolant system and 0.5 MPa (5 kgf/cm^2) flood coolant (upper turret)	○	○	○
	Flood coolant for lower turret	—	—	●
	Shower coolant (main spindle side)	○	○	●
	Shower coolant (second spindle side)	○	○	○
	Oil skimmer	○	○	○
	Coolant temperature control	○	○	○
	Mist collector	○	○	○
	Coolant & air blast for chuck jaws (main spindle)	○	○	○
	Air blast through spindle	○	○	○
	Air blast for chuck jaws (main spindle)	○	○	○
	Air blast for chuck jaws (second spindle)	—	●	●
	Preparation for chip conveyor (side disposal / hinge)	●	●	●
	Preparation for chip conveyor (side disposal / ConSep)	○	○	○
	Chip conveyor (side disposal / hinge)	○	○	○
	Chip conveyor (side disposal / ConSep)	○	○	○
	Chip bucket (rotating)	○	○	○
	Chip bucket (fixed)	○	○	○
Others	Manuals (CD)	●	●	●
	Additional manuals (CD or paper)	○	○	○
	MAZATROL SmoothAi dual monitor	○	○	○

Machine Dimensions

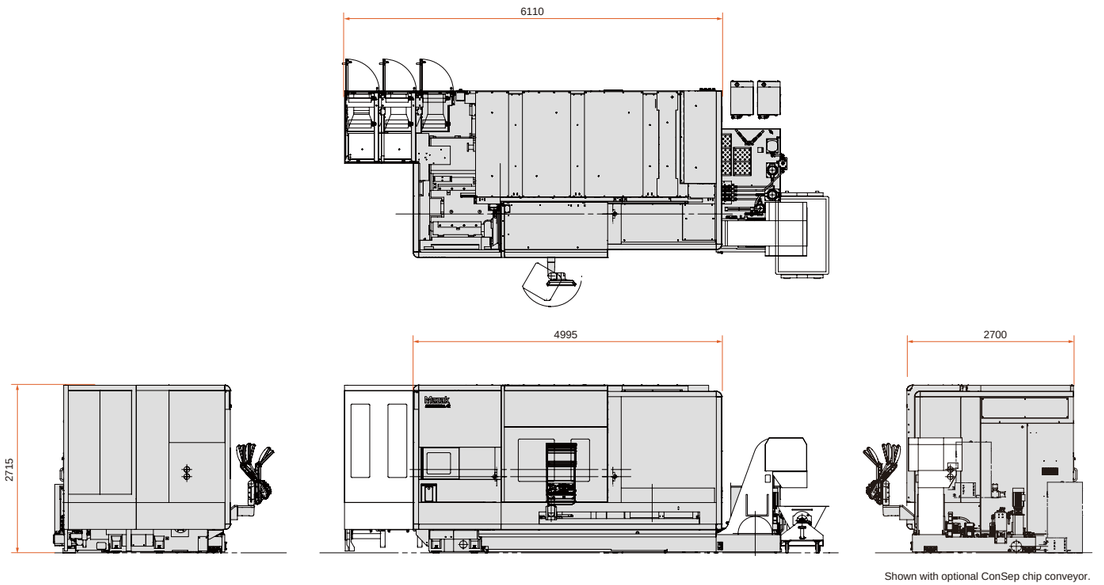
Unit : mm

INTEGREX i-100H, i-100H S, i-100H ST, i-200H, i-200H S, i-200H ST



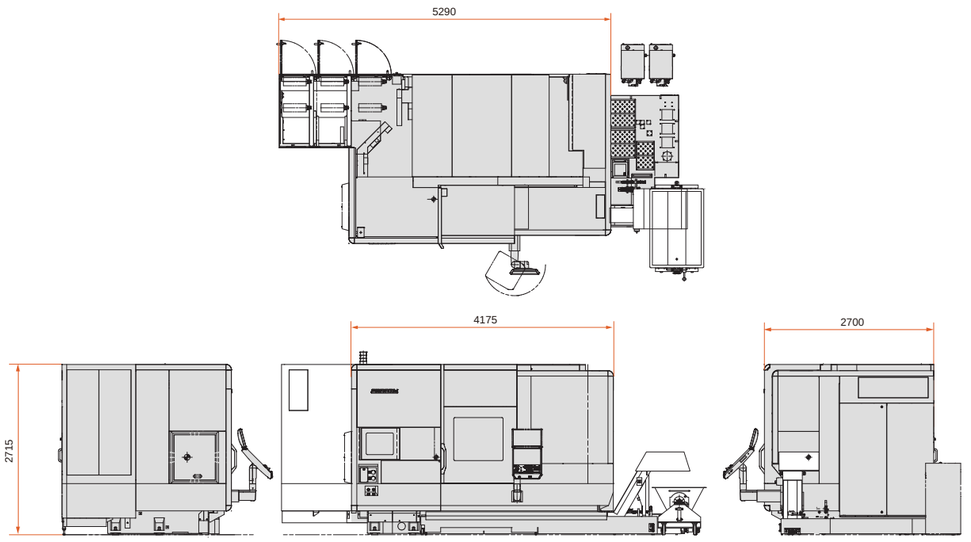
Shown with optional ConSep chip conveyor.

INTEGREX i-250H, i-250H S, i-250H ST, i-350H, i-350H S, i-350H ST, i-450H, i-450H S, i-450H ST（1500U）



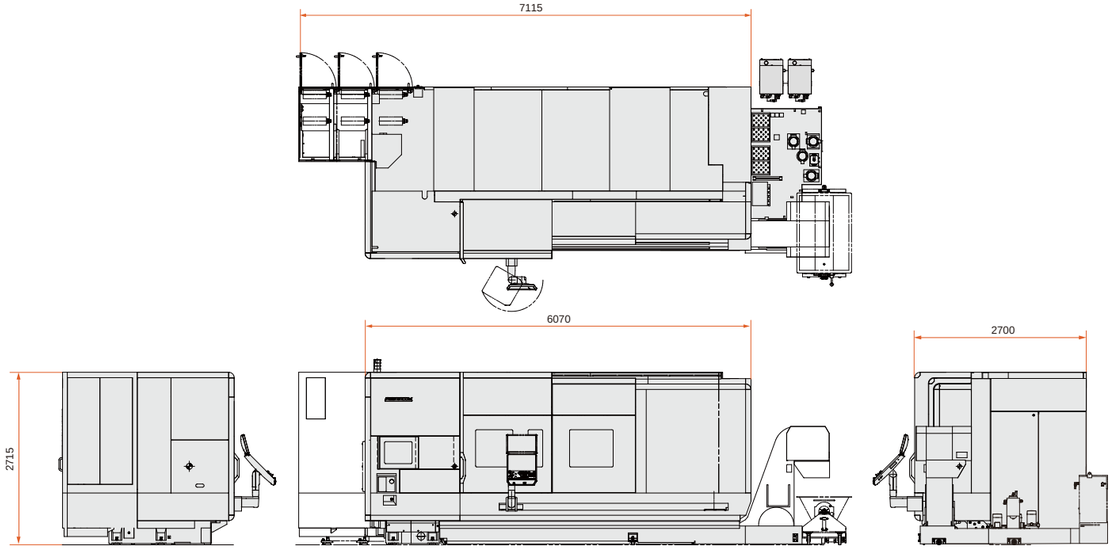
Shown with optional ConSep chip conveyor.

INTEGREX i-250H, i-250H S, i-350H, i-450H（1000U）



Shown with optional chip conveyor (hinge).

INTEGREX i-350H, i-350H S, i-450H, i-450H S (2500U)



Shown with optional ConSep chip conveyor.