SMOOTH TECHNOLOGY

INTEGREX i SERIES

100 100S 100ST
200 200S 200ST
300 300S 300ST
400 400S 400ST

Mazak

The INTEGREX i series - Incorporating the extensive expertise accumulated in the production of multi-tasking machine tools over 30 years

- High-speed, high-accuracy machining by DONE IN ONE processing
- High-rigidity construction and powerful spindles for higher productivity
- Long Y-axis stroke provides large machining area

Advanced multi-tasking machine for DONE IN ONE processing

INTEGREX i SERIES

Advanced features of the SmoothX CNC

Touch screen operation
— Operates 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
High precision machining of complex counters at high speed feedrates

Smooth user interference and support functions for unsurpassed ease of operation

Easily configure machine parameters for different workpiece materials and applications requirements

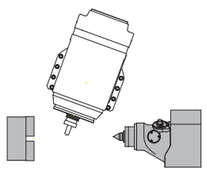
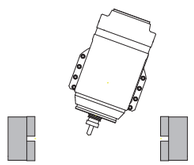
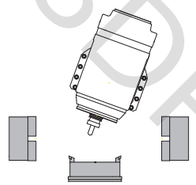
MTConnect®
— Convenient networking

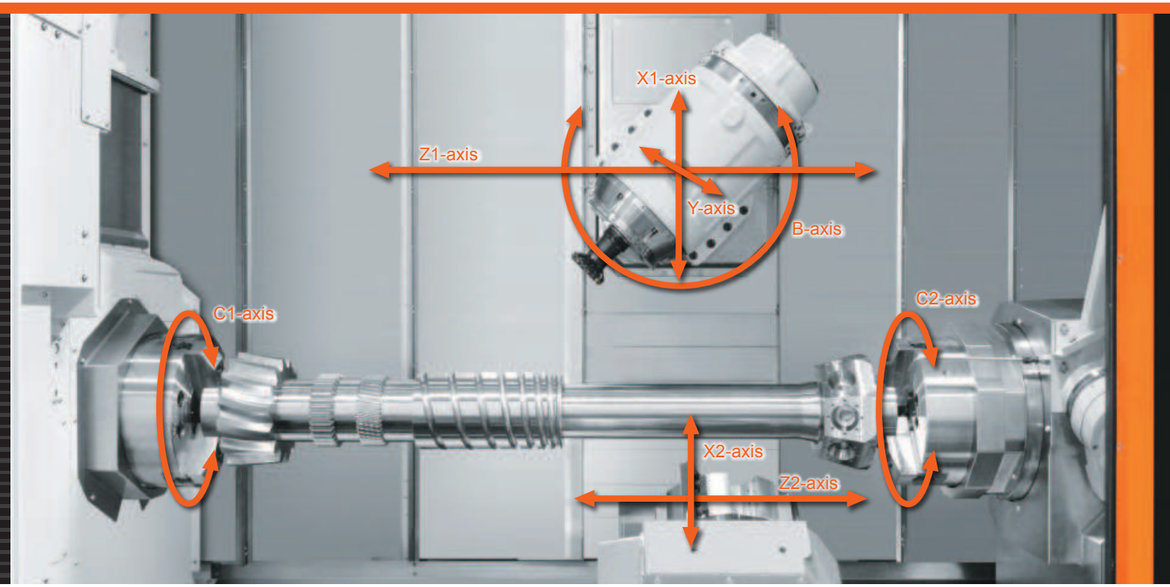
MAZATROL SMOOTH X

INTEGREX i series lineup

Multi-tasking machines you can use with confidence

High-power cutting performance comparable to that of machining centers
Designed for a wide range of applications

With Tail stock	With Second Spindle	With Second Spindle + Lower Turret
		
i-100 i-200 i-300 i-400	i-100S i-200S i-300S i-400S	i-100ST i-200ST i-300ST i-400ST



		Milling spindle	Y-axis stroke	Chuck size (main spindle)	Tail stock (option)	Chuck size (second spindle)	Lower turret
INTEGREX i -100 series							
	100	12000 rpm [standard] [7.5 kW (10 HP) (40 % ED / 30 min)] 20000 rpm [option] [5.5 kW (7 HP) (10 % ED)]	210 mm (8.27") (±105 mm) (±4.13")	6"～8"	MT No.4 Dead center	6"	9 position drum turret
	100S						
	100ST						
INTEGREX i -200 series							
	200	1000U 1500U	260 mm (10.24") (±130 mm) (±5.12")	8"～10"	MT No.5 Built-in center	8"～10"	9 position drum turret
	200S						
	200ST	1500U					
INTEGREX i -300 series							
	300	1000U, 1500U, 2500U	260 mm (10.24") (±130 mm) (±5.12")	10"～12"	MT No.5 Built-in center	10"～12"	9 position drum turret
	300S	1500U, 2500U					
	300ST	1500U					
INTEGREX i -400 series							
	400	1000U, 1500U, 2500U	260 mm (10.24") (±130 mm) (±5.12")	12"～15"	MT No.5 Built-in center	10"～12"	9 position drum turret
	400S	1500U, 2500U					
	400ST	1500U					

Orthogonal design provides large operation area and high-accuracy machining

High-rigidity, high-accuracy — C-axis disk brake

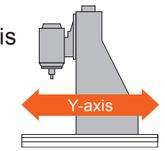
C-axis positioning: min. Indexing increment: 0.0001°

Roller gear cam on 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.

High-rigidity, high-accuracy Y-axis

Orthogonal design enables a long Y-axis stroke to provide a large machining area.



Linear roller guides

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

Ball screw core cooling

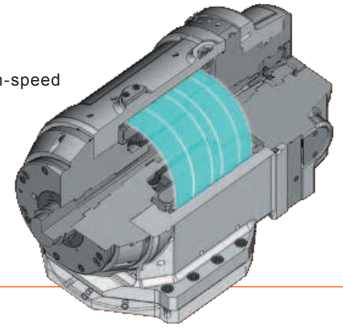
Temperature controlled cooling oil circulates through the ball screw cores to ensure stable machining accuracy over extended periods of high speed operation.

Integral spindle/motor

Thanks to the integral spindle/motor design, vibration is minimized during high-speed operation to ensure exceptional surface finishes and maximum tool life.

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.



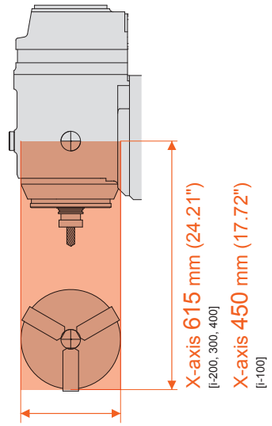
High-Power Turning/Milling Spindles and High-Speed Feedrates

High-speed feedrates: X, Z-axes: 50 m/min*1 (1969 IPM), Y-axis: 40 m/min (1575 IPM) for higher productivity*2
High-power turning and milling spindles for high-efficiency machining and minimized machining time.

*1 Z-axis feedrate on 2500U is 40 m/min (1575 IPM)
*2 INTEGREX i-200, 300 and 400

Large Machining Area and High Rigidity Construction

The orthogonal machine design of the INTEGREX i series provides a large machining area plus high-rigidity machine construction



Machining examples

Machining time can be reduced without C-axis rotation

Previous machine model		INTEGREX i-100S
24 min 57 sec.	4 min 3 sec. faster	20 min 54 sec.

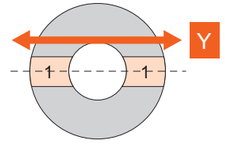
Long Y-axis stroke
- Can feed past spindle center line
- Faster feedrate
- Improved milling performance

Expanded machining versatility thanks to longer Y-axis stroke

INTEGREX i series

Perform machining application such as shown below with Y-axis stroke going past spindle center line

X-, Y-axis machining



Higher Productivity & Higher Accuracy

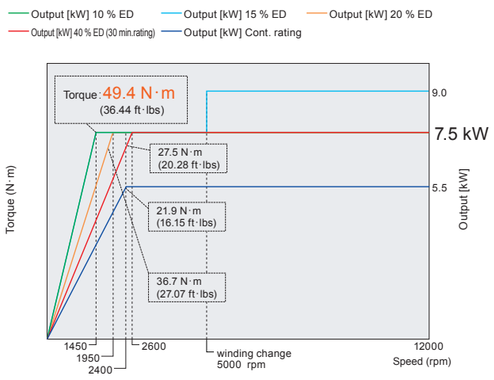
Milling spindle

High-power milling spindle for faster cycle times

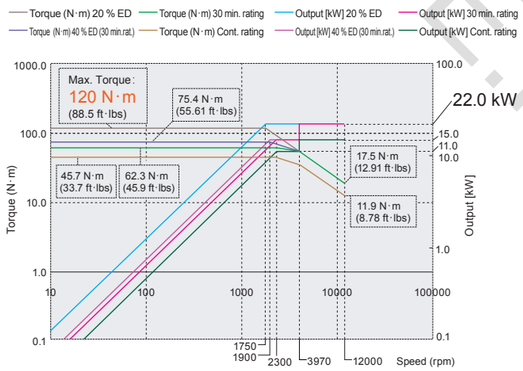
12000 rpm milling spindle STANDARD

High-output, high-torque 12000 rpm spindle

■INTEGREX i-100 series



■INTEGREX i-200, 300, 400 series

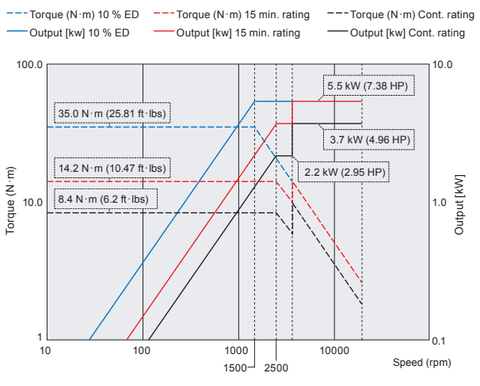


The standard 12000 rpm milling spindle utilizes grease lubrication.
Oil-air lubrication system optionally available for the
INTEGREX i-200, 300, 400 12000 rpm milling spindle.

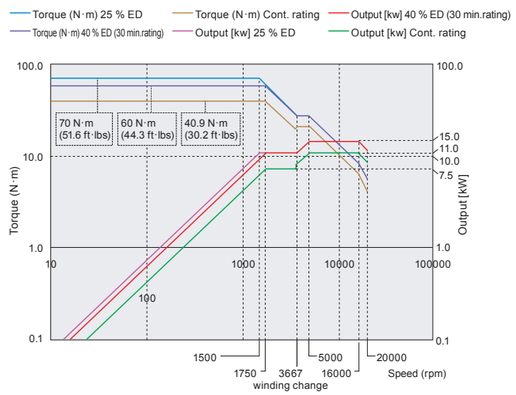
20000 rpm milling spindle OPTION

High spindle speed for small diameter mills and drills

■INTEGREX i-100 series



■INTEGREX i-200, 300, 400 series



High-rigidity, high-accuracy B-axis

Rigid roller gear cam on B-axis

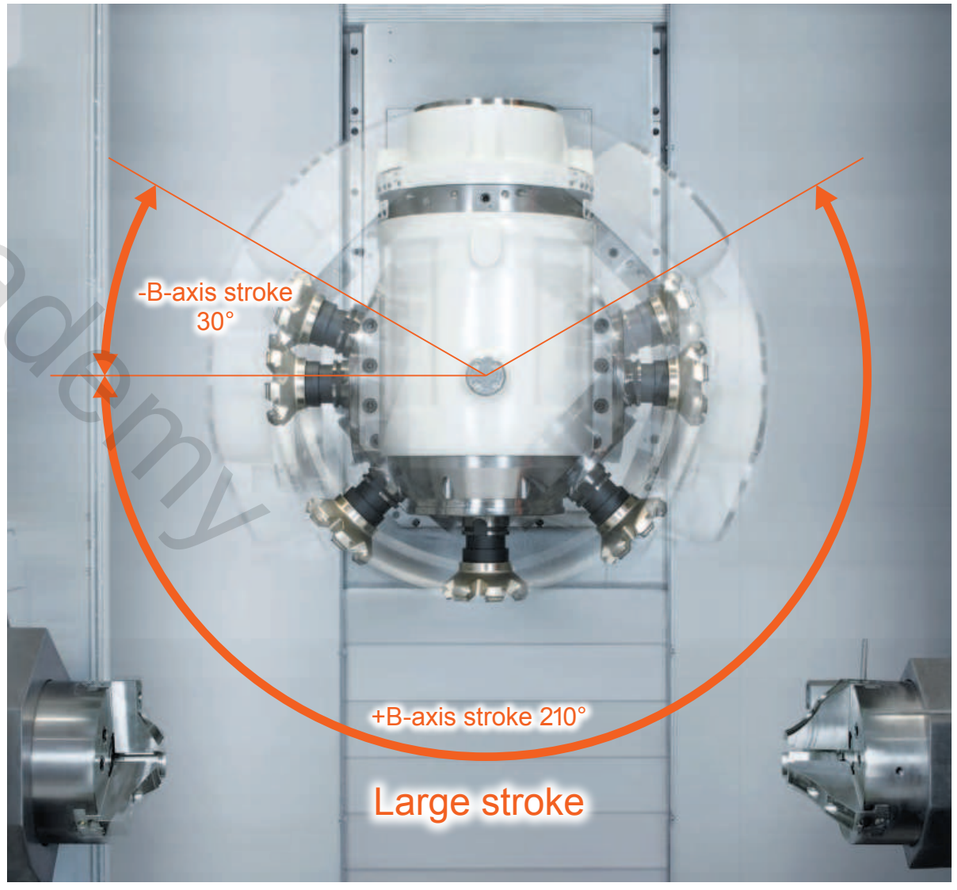
For high-rigidity heavy-duty cutting
Positive drive mechanism virtually eliminates backlash to ensure high-accuracy positioning

Minimum indexing increment: 0.0001°

B-axis scale feedback — standard equipment

Large machining area

The single spindle turret with automatic tool changer simplifies tool setup with minimum interference. The milling spindle provides excellent performance over a wide range of applications, from steel machining to high speed machining of aluminum.



Higher Productivity & Higher Accuracy

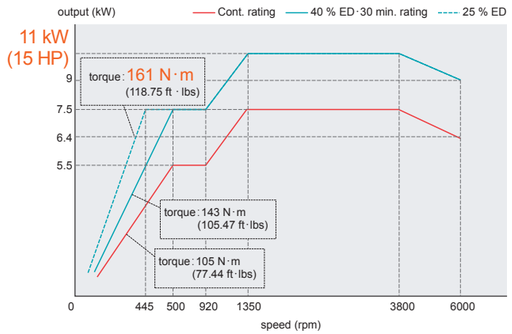
Main spindle

Powerful turning 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.

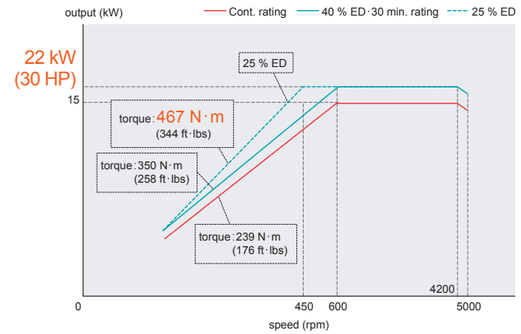
■INTEGREX i-100, 100S, 100ST

Main spindle speed 6000 rpm
Main spindle power 11 kW (15 HP) (40 % ED) (30 min. rating) 7.5 kW (10 HP) (Cont. rating)
Max. torque 161 N·m (25 % ED)



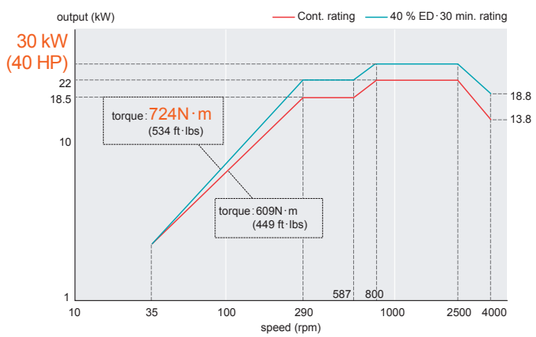
■INTEGREX i-200, 200S, 200ST

Main spindle speed 5000 rpm
Main spindle power 22 kW (30 HP) (40 % ED) (30 min. rating) 15 kW (20 HP) (Cont. rating)
Max. torque 467 N·m (25 % ED)



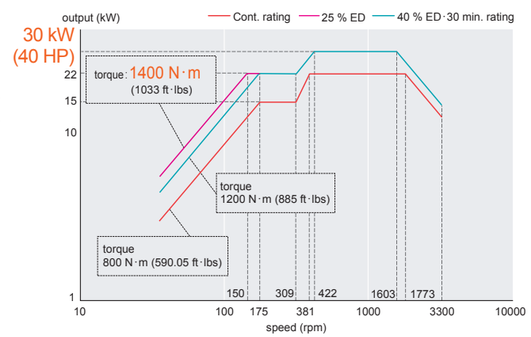
■INTEGREX i-300, 300S, 300ST

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



■INTEGREX i-400, 400S, 400ST

Main spindle speed 3300 rpm
Main spindle power 30 kW (40 HP) (40 % ED) (30 min. rating) 22 kW (30 HP) (Cont. rating)
Max. torque 1400 N·m (25 % ED)



High-accuracy C-axis

Full-disc brake design

Unique disc brake design powerfully clamps on entire disc to ensure high-accuracy during heavy-duty machining

Main spindle minimum indexing increment: 0.0001°

The C-axis can be indexed in 0.0001 degree increments.

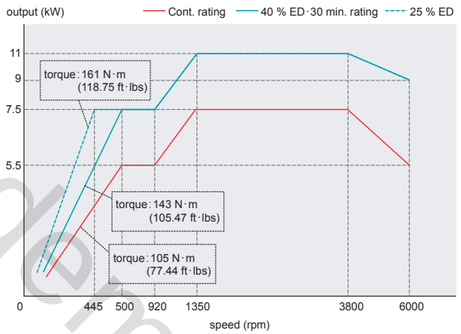
Second spindle

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.

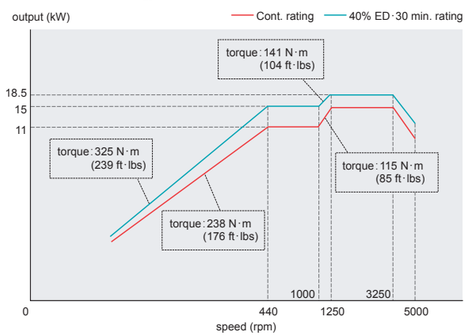
■INTEGREX i-100S, 100ST

Main spindle speed 6000 rpm
Main spindle power 11 kW (15 HP) (40 % ED) (30 min. rating) 7.5 kW (10 HP) (Cont. rating)
Max. torque 161 N·m (25 % ED)



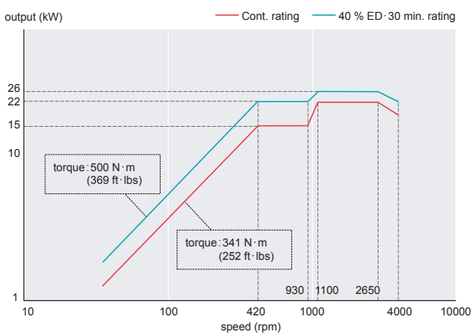
■INTEGREX i-200S, 200ST

Main spindle speed 5000 rpm
Main spindle power 18.5 kW (25 HP) (40 % ED) (30 min. rating) 15 kW (20 HP) (Cont. rating)
Max. torque 325 N·m (40 % ED) (30 min. rating)



■INTEGREX i-300S, 300ST, 400S, 400ST

Main spindle speed 4000 rpm
Main spindle power 26 kW (35 HP) (40 % ED) (30 min. rating) 22 kW (30 HP) (Cont. rating)
Max. torque 500 N·m (40 % ED) (30 min. rating)



Higher Productivity

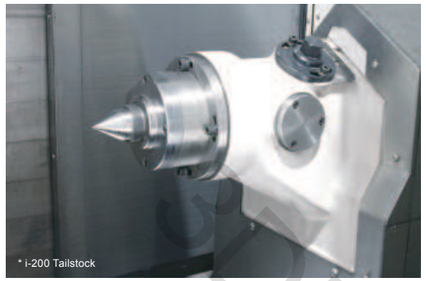
NC Tailstock

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

i-100
Tailstock Center (Live Center) : MT No.4　Max. thrust : 2 kN (203 kgf) (450 lbs)

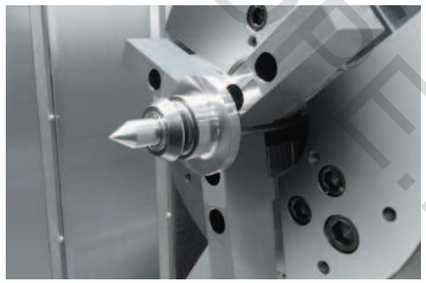
i-200
Tailstock Center (Built-in Center) : MT No.5　Max. thrust : 7 kN (713 kgf) (1574 lbs)

i-300, 400
Tailstock Center (Built-in Center) : MT No.5　Max. thrust : 10 kN (1019 kgf) (2248 lbs)


* i-200 Tailstock

Shaft workpiece machining with second spindle (S and ST models)

By chucking on a center in the second spindle chuck, it can be used as a tailstock. The operator can set the tailstock position on the setup screen and move the tailstock to the correct position by menu-key or M-code.



Lower Turret

[INTEGREX i-100ST, 200ST, 300ST, 400ST]

The lower turret makes it possible to have two tools cutting simultaneously for higher productivity. 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, tools used by the INTEGREX Ⅳ series can be used by the INTEGREX i series.

Lower turret standard specification

[i-100ST, 200ST, 300ST, 400ST]

9 position drum turret for an expanded range of machining.

Turret type	9 position drum turret
Number of tools	9 tools
Tool size	i-100ST Turning tool □20 mm (0.75")　Boring bar ø32 mm (1.25") i-200ST/300ST/400ST Turning tool □25 mm (1")　Boring bar ø32 mm (1.25")
Turret indexing	0.14 sec. / 1step

Lower turret with rotary tools OPTION

[i-200ST, 300ST, 400ST]

The lower turret is optionally available with rotary tools. Milling can be performed simultaneously by the upper and lower turrets for improved productivity.

Number of tools	9 tools (Max. 6 rotary tools)
Max. milling spindle speed	6000 rpm
Milling spindle power	AC 3.7 kW (5HP)
Max. torque	18 N·m (13.3 ft·lbs)
Tool size	Drill　ø14 mm (0.55")
	Tap　M12

Increased productivity by machining with milling spindle and 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.

■Balance cut

Reduced machining time, high-accuracy machining and improved surface finish when machining small diameter shaft workpieces are ensured by balance cutting with the milling spindle and lower turret.

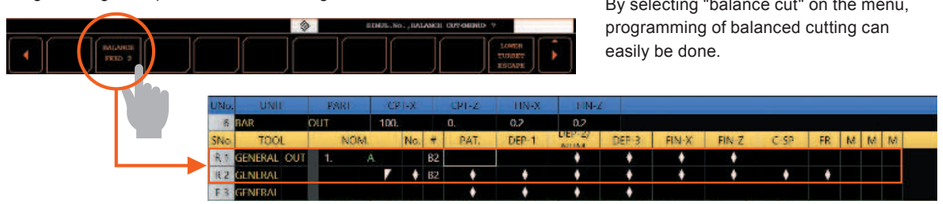
Conversational programming of machining by the milling spindle and lower turret

Both upper and lower turrets are easily operated by conversational programs — to use the lower turret, all that is required is to input the "lower turret mark: " for the respective tool in the program.

Program example of simultaneous machining

Select which turret is to be used for machining.

Programming example of balanced cutting.



By selecting "balance cut" on the menu, programming of balanced cutting can easily be done.

Applications

The INTEGREX i series is designed to efficiently machine workpieces found in many industries

Aerospace

Blisk

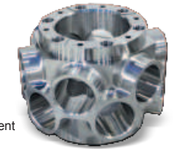
Turbine blade

Medical

Bone prosthesis

Bone prosthesis

Automotive



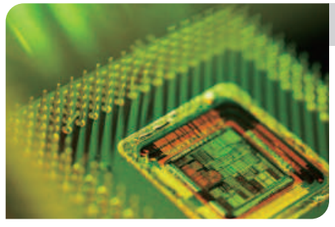
Engine component

Crankshaft

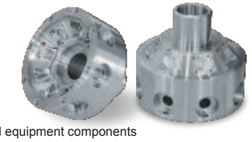
Oil, energy and construction machinery

Drill head

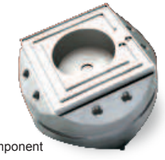
Excavator component



General machinery



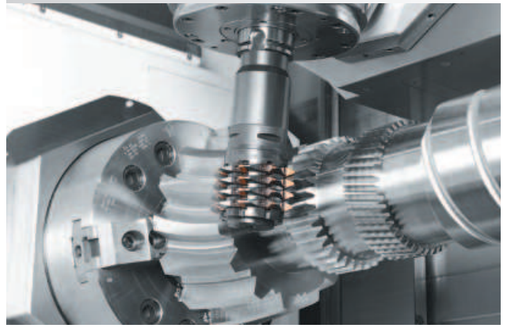
Optical equipment components



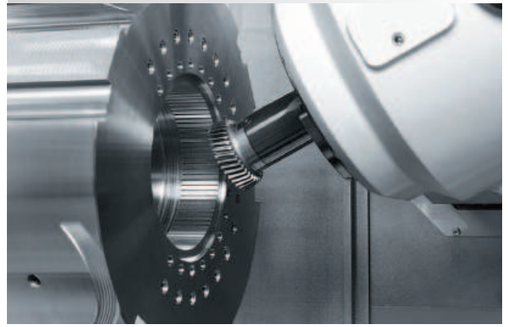
Vacuum equipment component

Advanced machining capabilities of the INTEGREX i series

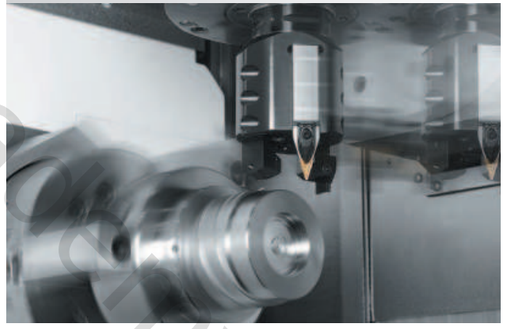
Gear hobbing



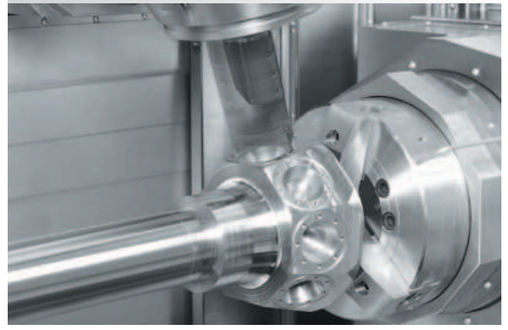
Gear skiving



Flash Tool - multi tool machining for reduced tool changing time



Shaping



B-axis turning

DONE IN ONE

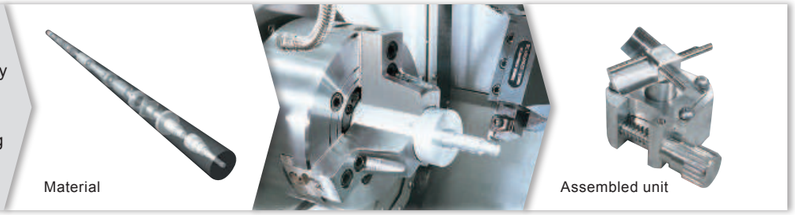
DONE IN ONE®

The "DONE-IN-ONE" concept incorporates all machining processes from raw material input through final machining — in just one machine. It provides the ability to reduce production lead time, improve machining accuracy, reduce floor space and initial cost, lower operating expenses, reduce operator requirements and improve the work environment. As a result, the concept not only streamlines production, it also improves overall management.

Effective for set production

Machining example of liquid agitator components

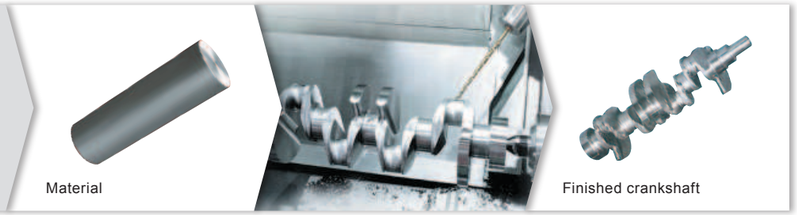
5 different kinds of workpieces can be machined from ø50 mm (ø1.97") bar material without any changes to the machine setup. Assembly can be performed immediately after the machining completion of a set of workpieces.



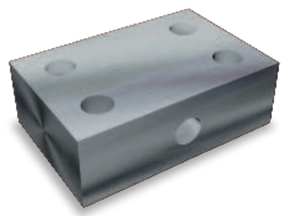
Effective for the machining of prototype components

Machining crankshaft by INTEGREX

Machining of a prototype crankshaft requires multiple operations over several machining centers and turning centers. The same component can be finished on a single INTEGREX.



Production process comparison



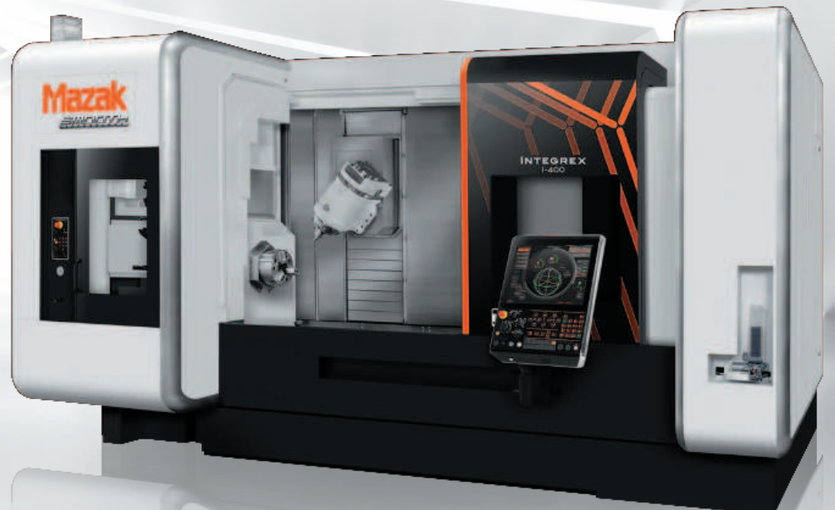
	Number of Operators	Number of Machines	Number of Programs	Number of Machine Setups	Cutting Tools	Fixtures	In-process inventory	In-process time / In-process inventory
Conventional machining processing	Three operators	•Vertical machining center: three machines Three machines	Three programs	Eight setups	Three machines	Three machines	Eight processes	Large
DONE IN ONE	One operator	One machine	One program	One setup	One machine	Not required	Minimum	Small

Intelligent Machine

A variety of Intelligent Functions provides incomparable operator support for exceptional ease of operation and the optimum machine efficiency

Yamazaki Mazak has developed a variety of functions for the improvement of productivity, high accuracy machining and operator support. A variety of unique technologies has been developed that incorporates the expertise of experienced machine operators that realizes unsurpassed productivity and higher accuracy machining.

INTELLIGENT MACHINE®



Advanced Intelligent Functions

A variety of Intelligent+ Functions provides incomparable operator support for exceptional ease of operation and the optimum machine efficiency.

Machining

SMC+
Convenient Parameter Setting and Fine Tuning Function
SMOOTH MACHINING CONFIGURATION
Machining time, finished surface smoothness and machining shape can be adjusted for improved productivity

ITS+
Heat Displacement Control
INTELLIGENT THERMAL SHIELD
Unique Mazak heat displacement compensation system

VAC
Variable Acceleration Control Function
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

SCC
Seamless Corner Control
SMOOTH CORNER CONTROL
Improved finished surfaces and reduced cycle times by optimized acceleration/deceleration when machining corners

AVC
Minimized Vibration
ACTIVE VIBRATION CONTROL
Minimized vibration function for high-speed, high-accuracy machining and longer tool life

Set up

ISS+
Machine Interference Prevention
INTELLIGENT SAFETY SHIELD
For safe operation

MVA+
Verbal Message System
MAZAK VOICE ADVISER
Verbal support for machine setup and safe conditions confirmation

Maintenance

IMC+
High-Accuracy 5-Axis Calibration
INTELLIGENT MAZA-CHECK OPTION
Position misalignment and incline of the rotary axes can automatically be measured and compensated to realize high-accuracy 5-axis machining

IMS+
Comprehensive Maintenance Monitor
INTELLIGENT MAINTENANCE SUPPORT
Useful information for improved preventative maintenance to prevent unexpected machine downtime

IPS+
Comprehensive Spindle Monitoring
INTELLIGENT PERFORMANCE SPINDLE
Monitoring milling spindle status — designed to minimize downtime and improve preventative maintenance

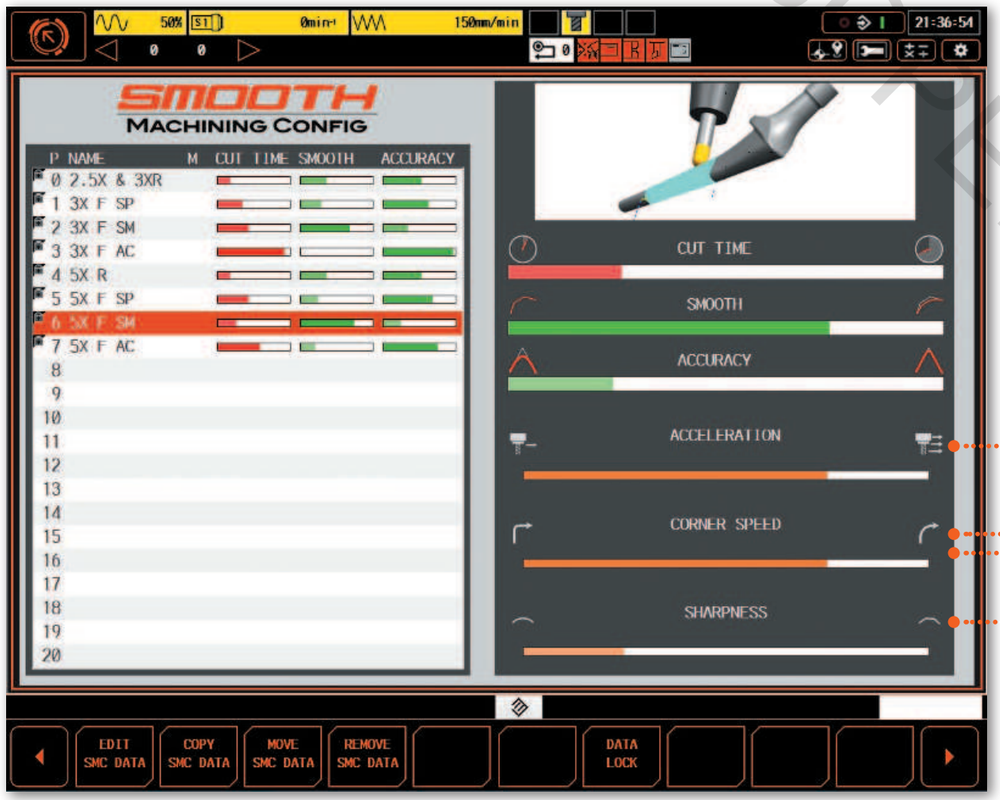
Intelligent Machine

SMC+

Convenient Parameter Setting and Fine Tuning Function

SMOOTH MACHINING CONFIGURATION

Machining features including cycle time, finished surface and machining shape can be adjusted by slider switches on the display according to material requirements and machining methods. This is especially effective for complex workpiece contours defined in small program increments. Once the desired results are obtained, the settings can be stored in memory so that they can be easily used again in the future.



Machining time for an aluminum impeller was reduced approximately 10-20% by using this function

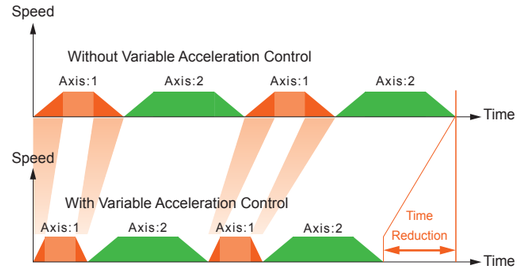
(test results for reference only)

VAC

Variable Acceleration Control Function

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.



SCC

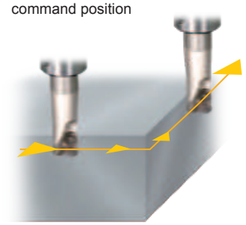
Seamless Corner Control

SMOOTH CORNER CONTROL

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

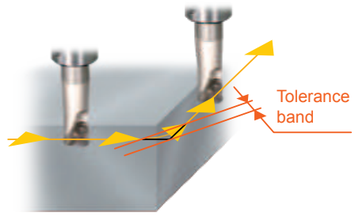
Other systems

Move to next command position after reaching current command position



SMOOTH CORNER CONTROL

Move to next command position within tolerance band



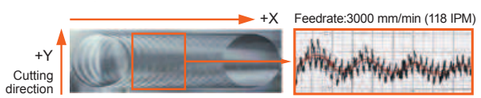
AVC

Minimized Vibration

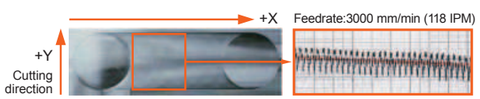
ACTIVE VIBRATION CONTROL

Minimized vibration function for high-speed, high-accuracy machining and longer tool life.

Other Systems



ACTIVE VIBRATION CONTROL



Intelligent Machine

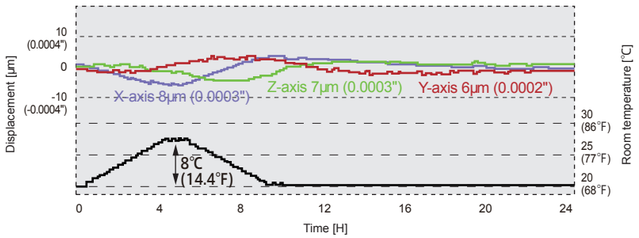
ITS+

Heat Displacement Control

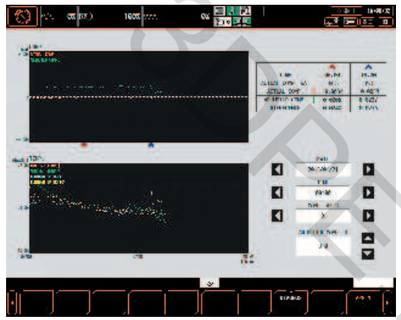
INTELLIGENT THERMAL SHIELD

Unique Mazak heat displacement compensation system

The INTELLIGENT 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.



*Above value are test results for reference only



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

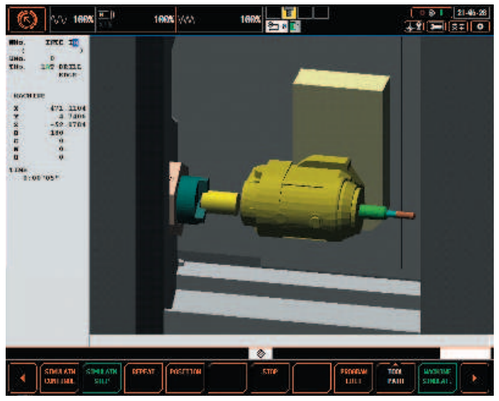
ISS+

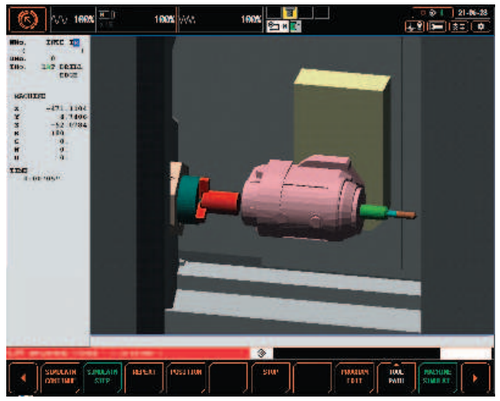
Machine Interference Prevention

INTELLIGENT SAFETY SHIELD

For safe operation

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 is also effective during automatic operation.





IMC+

High-Accuracy 5-Axis Calibration

INTELLIGENT MAZA-CHECK OPTION

Position misalignment and incline of the rotary axes can automatically be measured and compensated to realize high-accuracy 5-axis machining. The centers of rotation of both the C and B axes can be automatically measured and compensated.

▼Measurement item selection

▼Measurement information setting

▼Automatic measurement program generation

Convenient screen display assists measurement operation.

IPS+

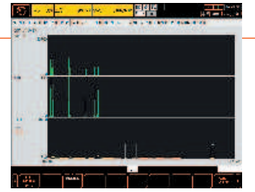
Comprehensive Spindle Monitoring

INTELLIGENT PERFORMANCE SPINDLE

The INTELLIGENT PERFORMANCE SPINDLE monitors a variety of properties such as 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 and temperature) can be recorded up to one year

MVA+

Verbal Message System

MAZAK VOICE ADVISER

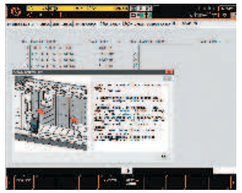
Verbal support for machine setup and safe conditions confirmation

IMS+

Comprehensive Maintenance Monitor

INTELLIGENT MAINTENANCE SUPPORT

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



MAZATROL CNC System

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

MAZATROL SMOOTH X

From setup to machining
— designed for unsurpassed ease of operation

Three color status indicator

Machining status is indicated by three colors.
Green: automatic operation mode
Yellow: Machining completion
Red: Alarm

19" touch panel

Touch panel operation
— similar to your smartphone or tablet

USB port

Interface for peripheral equipment of 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.

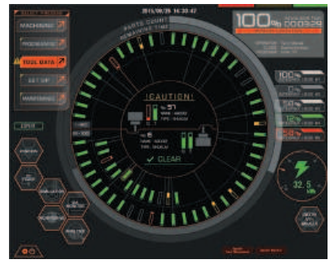
New interface with touch operation ensures convenient data processing
— programming, confirmation, editing, and tool data registration

Process home screens

Five different home process 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.

Programming

Tool data



Setup

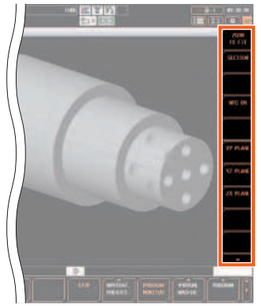
Machining

Maintenance

Pop-up windows

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

Side menu



List menu

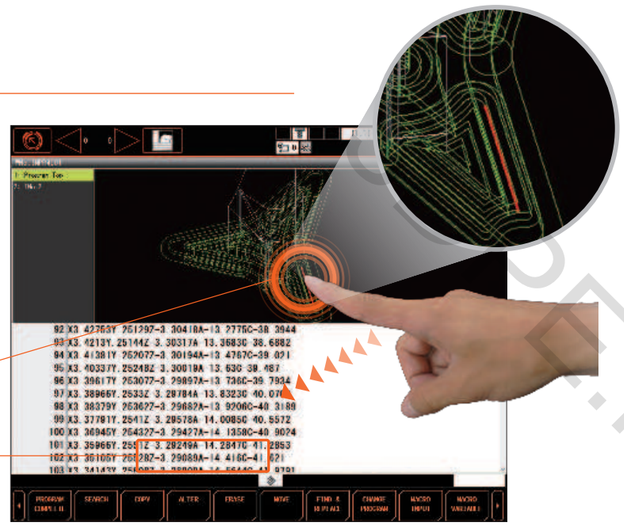
Screen key board

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.

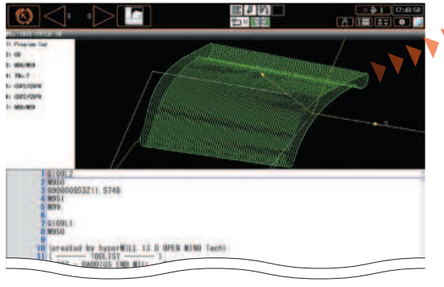


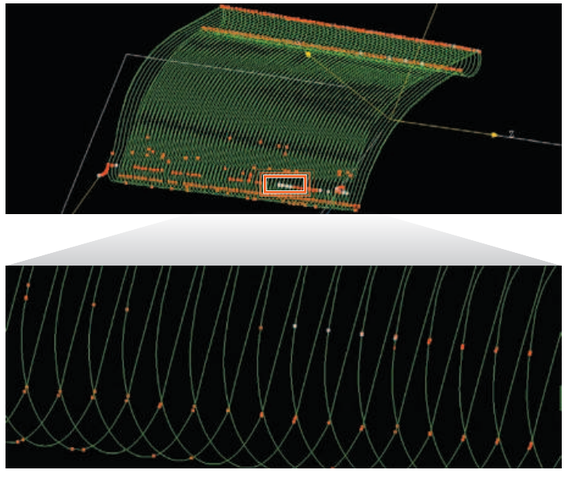
Selecting tool path by touching the screen.

Moving to the corresponding EIA program line.

VIEW SURF

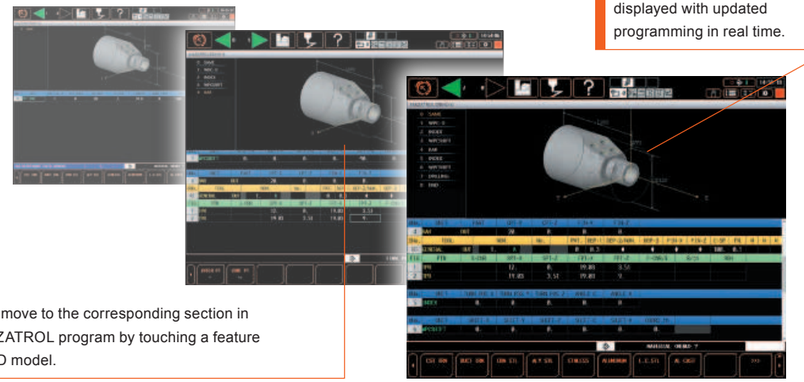
By analyzing tool path, any predictable failure on the finished surface can be visualized. Program modification can be done before machining to minimize the time for test cutting.





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.

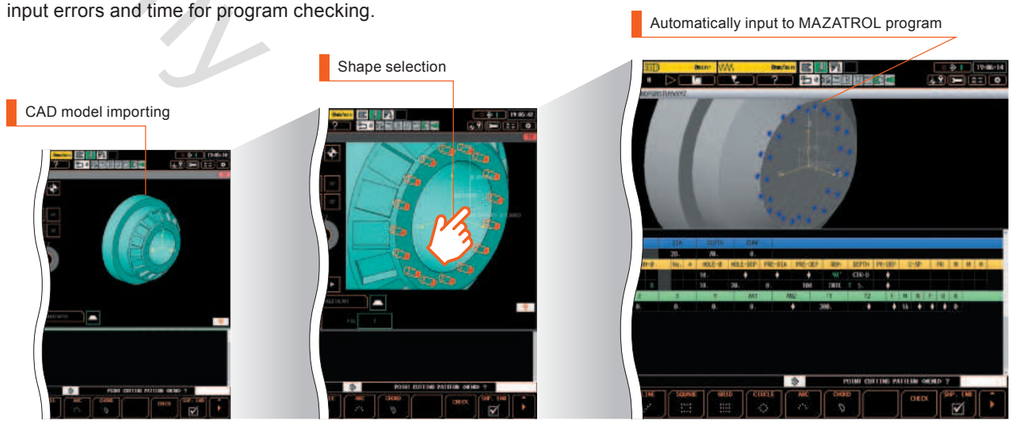


3D model in the process list is displayed with updated programming in real time.

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

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.



CAD model importing

Shape selection

Automatically input to MAZATROL program

Interoperation

Network integration
— convenient connection to automation equipment

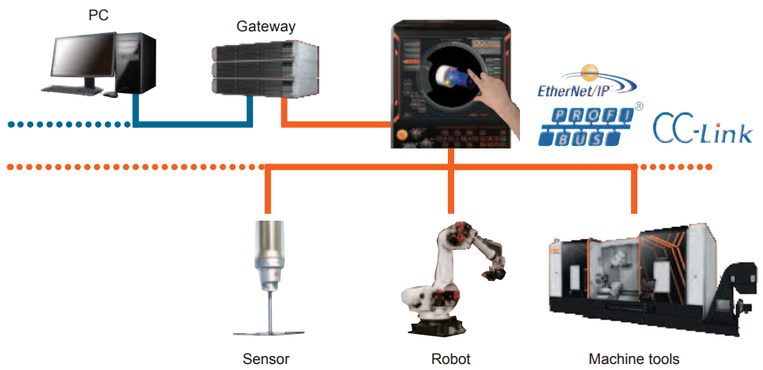
Smooth Process Support Software for efficient factory management OPTION

SMOOTH PROCESS SUPPORT SOFTWARE

Data sharing between SmoothX CNC and office PCs for improved production efficiency.

Networking to peripheral equipment OPTION

Convenient network connection to peripheral equipment thanks to industrial network standards



EtherNet/IP is a trademark of ODVA (Open Device Net Vendor Association).
PROFIBUS is a trademark of PROFIBUS User Organization.
MTConnect is a registered trademark of AMT (Association for Manufacturing Technology).

Environmentally Friendly

Designed with environmental considerations

eco-friendly

The environment and our impact on 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.

The linear roller guides utilized by all linear axes are lubricated by grease instead of oil. With this system, tramp oil in the coolant is considerably reduced resulting in an extended service life for coolant for reduced frequency of disposal. Additionally, high efficiency LED work lights are used for illumination of the machining area. These lights are automatically shut off after a predetermined period for lower power consumption when the machine is in the stand-by state.

INTEGREX i-400ST

Power consumption display OPTION

The electrical power meter displays the machine accumulated electrical power consumption.

Chip conveyor / Automatic power off

The optional chip conveyor is automatically shut off after a predetermined period for lower power consumption when the machine is in the stand-by state.

Ergonomics

Unsurpassed Ease of Operation and Maintenance Thanks to Ergonomic Machine Design

Convenient tool magazine access

Designed for efficient tool setup

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.

Designed for Ease of Operation

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

Large Window

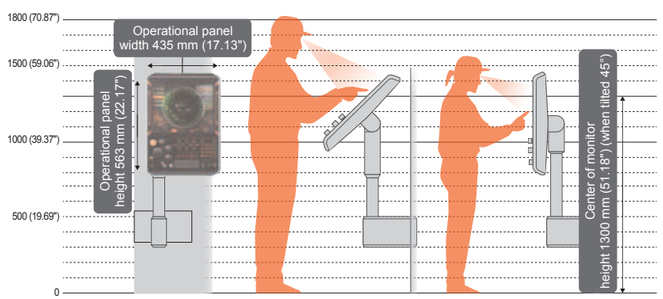
The large front door window allows workpiece machining to be easily monitored by the operator.

Wide door opening and convenient access for overhead crane

For ease of operation when loading/unloading workpieces
Excellent accessibility when using overhead crane.

Adjustable CNC Touch Panel

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



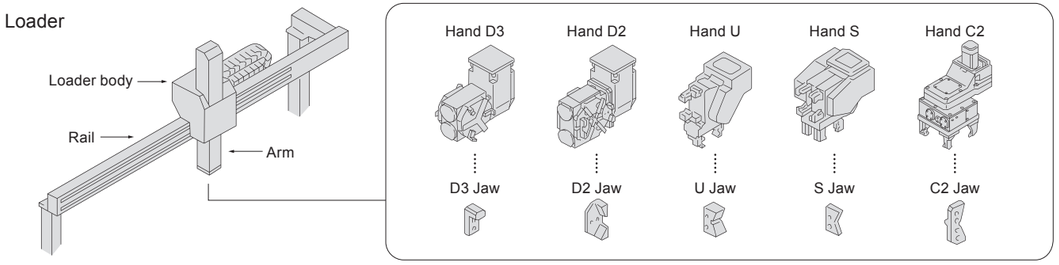
Automation

Gantry loader system

The Gantry loader is a very effective system to automatically load material and unload workpieces for unmanned operation over extended periods of time.

INTEGREX i-300S GL-400F

Available loader hands



Conveyor

Pitch-feed conveyor

The conveyor can store long shaft workpieces and irregularly-shaped workpieces and position them for pick-up by the robot.

Rotary conveyor

The rotary conveyor can stock relatively small diameter chuck workpieces in multiple levels.

Gantry loader system

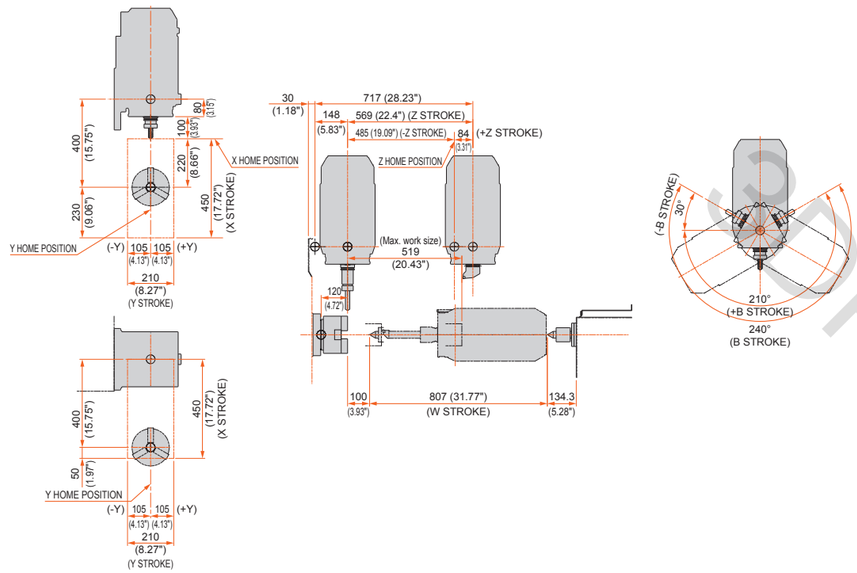
Loader		INTEGREX i-100 series		INTEGREX i-200 series		INTEGREX i-300 , 400 series			
		Gantry loader GL-50F	Gantry loader GL-75F	Gantry loader GL-100F	Gantry loader GL-150F	Gantry loader GL-200F	Gantry loader GL-300F	Gantry loader GL-400F	Gantry loader GL-500F
Traverse speed	Horizontal positioning speed	140 m/min (5512 IPM)	140 m/min (5512 IPM)	140 m/min (5512 IPM)	140 m/min (5512 IPM)	120 m/min (4724 IPM)	120 m/min (4724 IPM)	80 m/min (3150 IPM)	80 m/min (3150 IPM)
	Arm vertical positioning speed	70 m/min (2786 IPM)	70 m/min (2786 IPM)	70 m/min (2786 IPM)	70 m/min (2786 IPM)	60 m/min (2362 IPM)	60 m/min (2362 IPM)	40 m/min (1575 IPM)	40 m/min (1575 IPM)
Hand D3 For chuck workpieces Double hand, 3 jaws	Max. workpiece weight	Max. 5 kg (11.0 lbs)×2	Max. 7.5 kg (16.5 lbs)×2	Max. 10 kg (22.0 lbs)×2	Max. 15 kg (33.1 lbs)×2	Max. 20 kg (44.1 lbs)×2	Max. 30 kg (66.1 lbs)×2	Max. 40 kg (88.18 lbs) ×2	Max. 50 kg (110.23 lbs)×2
	Max. workpiece diameter	ø150 mm (ø5.91")	ø150 mm (ø5.91")	ø200 mm (ø7.87")	ø200 mm (ø7.87")	ø300 mm (ø11.81")	ø300 mm (ø11.81")	ø350 mm (ø13.78")	ø350 mm (ø13.78")
Hand D2 For chuck and irregularly-shaped workpieces Double hand, 2 jaws	Max. workpiece weight	Max. 5 kg (11.0 lbs)×2	Max. 7.5 kg (16.5 lbs)×2	Max. 10 kg (22.0 lbs)×2	Max. 15 kg (33.1 lbs)×2	Max. 20 kg (44.1 lbs)×2	Max. 30 kg (66.1 lbs)×2	Max. 40 kg (88.18 lbs) ×2	Max. 50 kg (110.23 lbs)×2
	Max. workpiece diameter	ø150 mm (ø5.91")	ø150 mm (ø5.91")	ø200 mm (ø7.87")	ø200 mm (ø7.87")	ø300 mm (ø11.81")	ø300 mm (ø11.81")	ø350 mm (ø13.78")	ø350 mm (ø13.78")
Hand S For shaft workpieces Single hand, 4 jaws	Max. workpiece weight	–	–	Max. 10 kg (22.0 lbs)×2	–	Max. 20 kg (44.1 lbs)×2	–	–	–
	Max. workpiece diameter			ø80 mm (ø3.15")		ø120 mm (ø4.72")			
Hand C2 For shaft workpieces Single hand, 4 jaws	Max. workpiece weight	–	–	–	–	–	–	Max. 100 kg (220.46 lbs)×1	–
	Max. workpiece diameter							ø215 mm (ø8.46")	
Hand U For shaft workpieces Double hand, 2 jaws	Max. workpiece weight	Max. 5 kg (11.0 lbs)×2	–	Max. 10 kg (22.0 lbs)×2	–	Max. 20 kg (44.1 lbs)×2	–	–	–
	Max. workpiece diameter	ø65 mm (ø2.56")		ø80 mm (ø3.15")		ø120 mm (ø4.72")			

Conveyor			INTEGREX i-100 series		INTEGREX i-200 series		INTEGREX i-300 , 400 series			
			Gantry loader GL-50F	Gantry loader GL-75F	Gantry loader GL-100F	Gantry loader GL-150F	Gantry loader GL-200F	Gantry loader GL-300F	Gantry loader GL-400F	Gantry loader GL-500F
			Pitch-feed conveyor type Ⅰ		Pitch-feed conveyor type Ⅱ		Pitch-feed conveyor type Ⅲ			
Pitch-feed conveyor large pallet	Number of pallet stations		5 pallets	5 pallets	6 pallets	6 pallets	6 pallets	6 pallets	6 pallets	6 pallets
	Max. load	Per pallet	60 kg (132.28 lbs)	60 kg (132.28 lbs)	100 kg (220.46 lbs)	100 kg (220.46 lbs)	200 kg (440.92 lbs)	200 kg (440.92 lbs)	200 kg (440.92 lbs)	200 kg (440.92 lbs)
		Total load	300 kg (661.38 lbs)	300 kg (661.38lbs)	600 kg (1322.75 lbs)	600 kg (1322.75 lbs)	1200 kg (2645.50 lbs)	1200 kg (2645.50 lbs)	1200 kg (2645.50 lbs)	1200 kg (2645.50 lbs)
	Chuck workpieces	Diameter	ø20-150 mm (ø0.79"-5.91")	ø20-150 mm (ø0.79"-5.91")	ø20-200 mm (ø0.79"-7.87")	ø20-200 mm (ø0.79"-7.87")	ø50-300 mm (ø1.97"-11.81")	ø50-300 mm (ø1.97"-11.81")	ø50-300 mm (ø1.97"-11.81")	ø50-300 mm (ø1.97"-11.81")
		Length	Max. 100 mm (3.94")	Max. 100 mm (3.94")	Max. 120 mm (4.72")	Max. 120 mm (4.72")	Max. 150 mm (5.91")	Max. 150 mm (5.91")	–	–
Pitch-feed conveyor small pallet	Number of pallet stations		7 pallets	–	8 pallets	–	9 pallets	–	9 pallets	–
	Max. load	Per pallet	42 kg (92.59 lbs)		75 kg (165.34 lbs)		133 kg (293.21 lbs)		133 kg (293.21 lbs)	
		Total load	300 kg (661.38 lbs)		600 kg (1322.75 lbs)		1200 kg (2645.50lbs)		1200 kg (2645.50lbs)	
	Shaft workpieces	Diameter	ø65 mm (ø2.56)		ø20-80 mm (ø0.79"-3.15")		ø20-120 mm (ø0.79"-4.72")		ø40-215 mm (ø1.57"-8.46")	
			Rotary conveyor type Ⅰ		Rotary conveyor type Ⅱ					
Rotary conveyor	Number of pallet stations		20 Station	20 Station	16 Station	16 Station	–	–	–	–
	Max. load	Per pallet	40 kg (88.18 lbs)	40 kg (88.18 lbs)	70 kg (154.32 lbs)	70 kg (154.32 lbs)				
		Total load	800 kg (1763.67lbs)	800 kg (1763.67lbs)	1120 kg (2469.14 lbs)	1120 kg (2469.14 lbs)				
	Chuck workpieces	Diameter	ø30-125 mm (ø1.18"-4.92")	ø30-125 mm (ø1.18"-4.92")	ø20-200 mm (ø0.79"-7.87")	ø20-200 mm (ø0.79"-7.87")				
		Length	20-100 mm (0.79"-3.94")	20-100 mm (0.79"-3.94")	20-120 mm (0.79"-4.72")	20-120 mm (0.79"-4.72")				
							Shuttle loop conveyor type Ⅱ		Shuttle loop conveyor type Ⅲ	
Shuttle loop conveyor	Number of pallet stations		–	–	–	–	12 pallets	12 pallets	12 pallets	12 pallets
	Max. load	Per pallet					100 kg (220.46 lbs)	100 kg (220.46 lbs)	200 kg (440.92 lbs)	200 kg (440.92 lbs)
		Total load					1200 kg (2645.50 lbs)	1200 kg (2645.50 lbs)	2400 kg (5291.01 lbs)	2400 kg (5291.01 lbs)
	Chuck workpieces	Diameter					ø50-350 mm (ø1.97"-13.78")	ø50-350 mm (ø1.97"-13.78")	ø50-450 mm (ø1.97"-17.72")	ø50-450 mm (ø1.97"-17.72")
		Length					Max. 150 mm (5.91")	Max. 150 mm (5.91")	–	–
	Shaft workpieces	Diameter					ø20-120 mm (ø0.79"-4.72")	–	ø40-215 mm (ø1.57"-8.46")	–

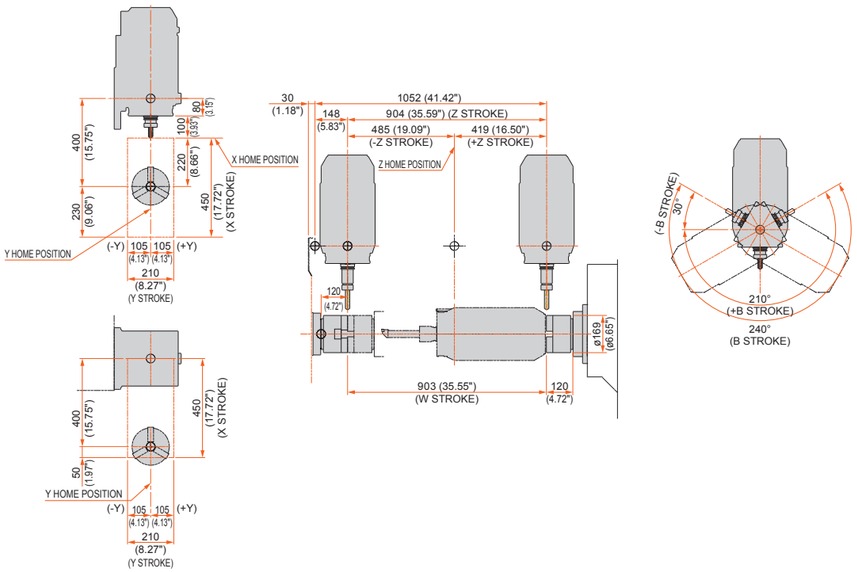
Stroke Diagram

mm (inch)

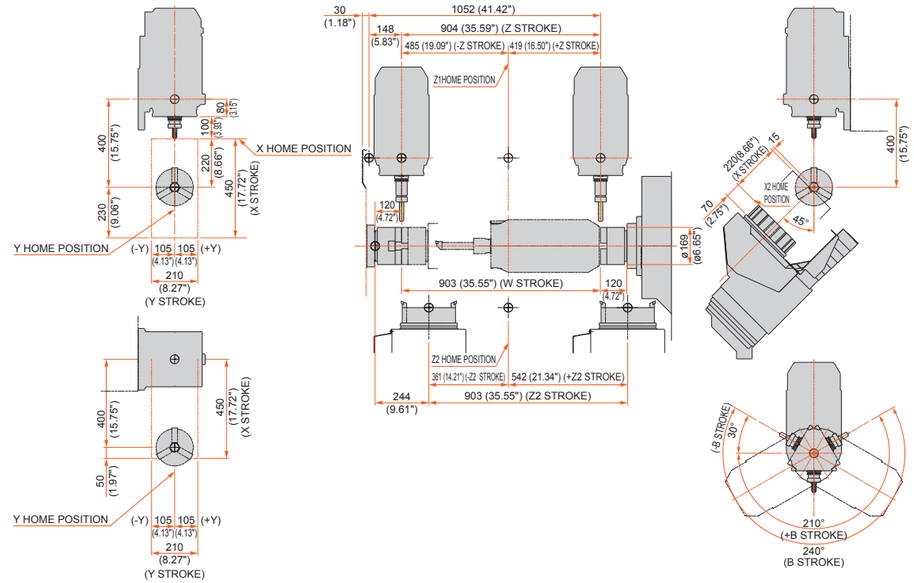
i-100



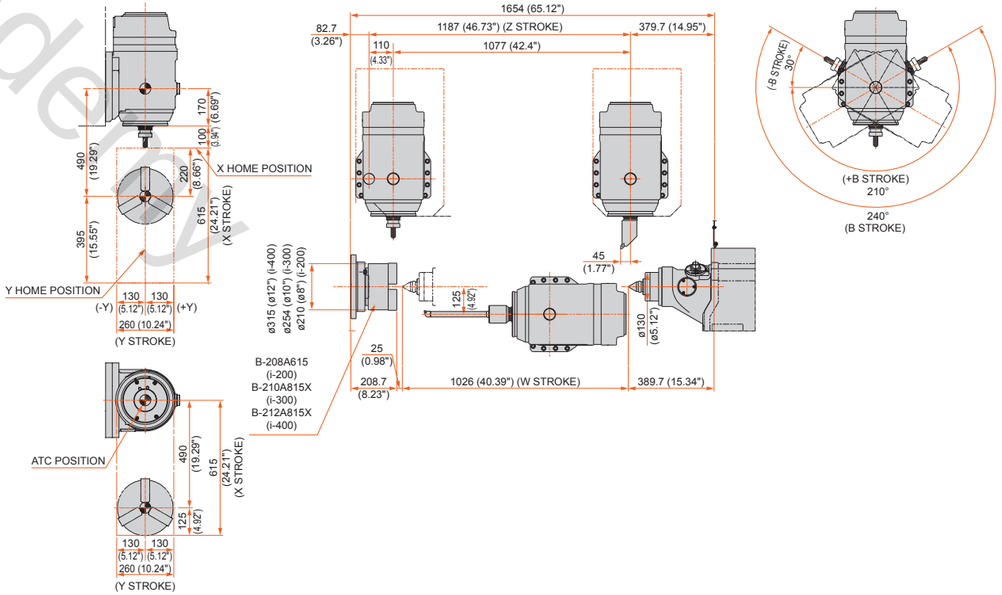
i-100S



i-100ST



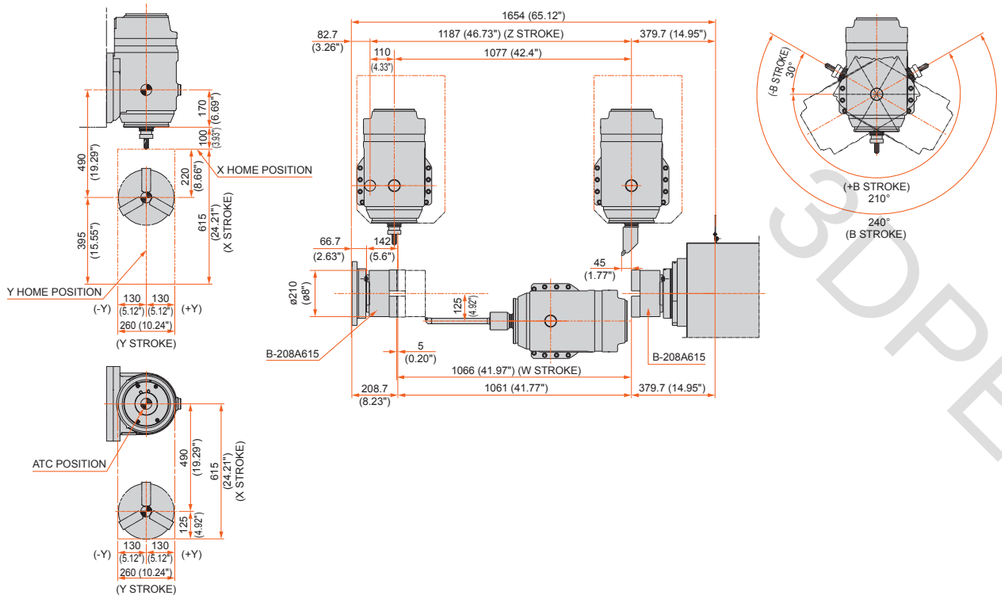
i-200, 300, 400 (1000U)



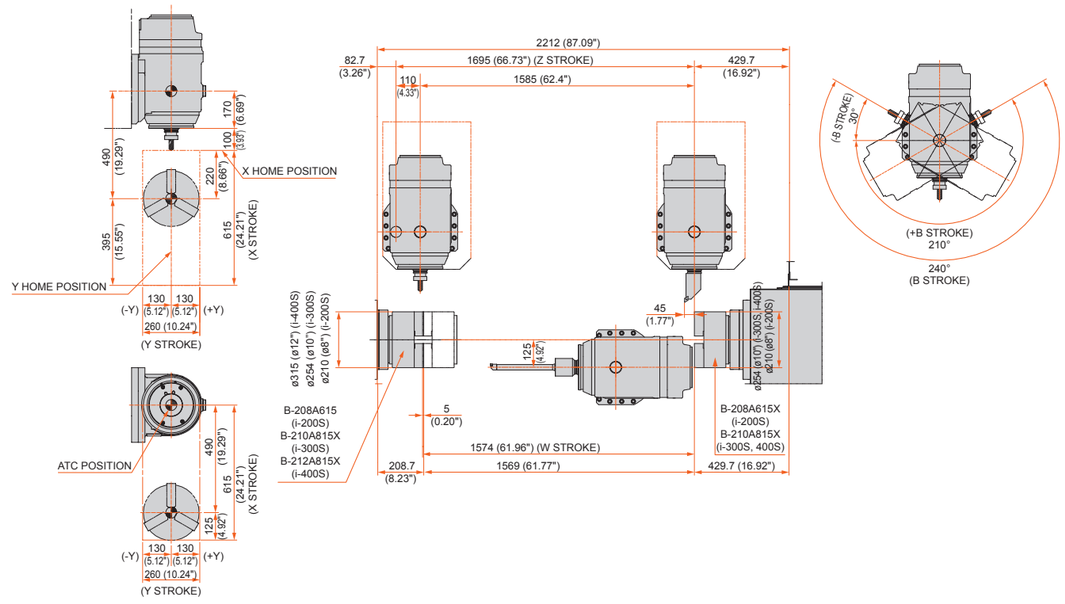
Stroke Diagram

mm (inch)

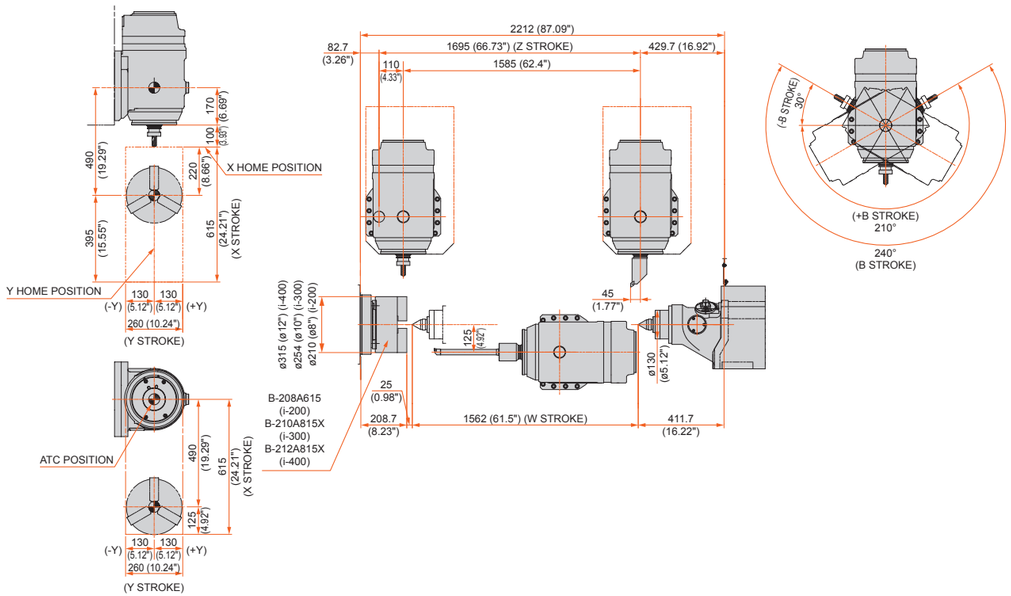
i-200S (1000U)



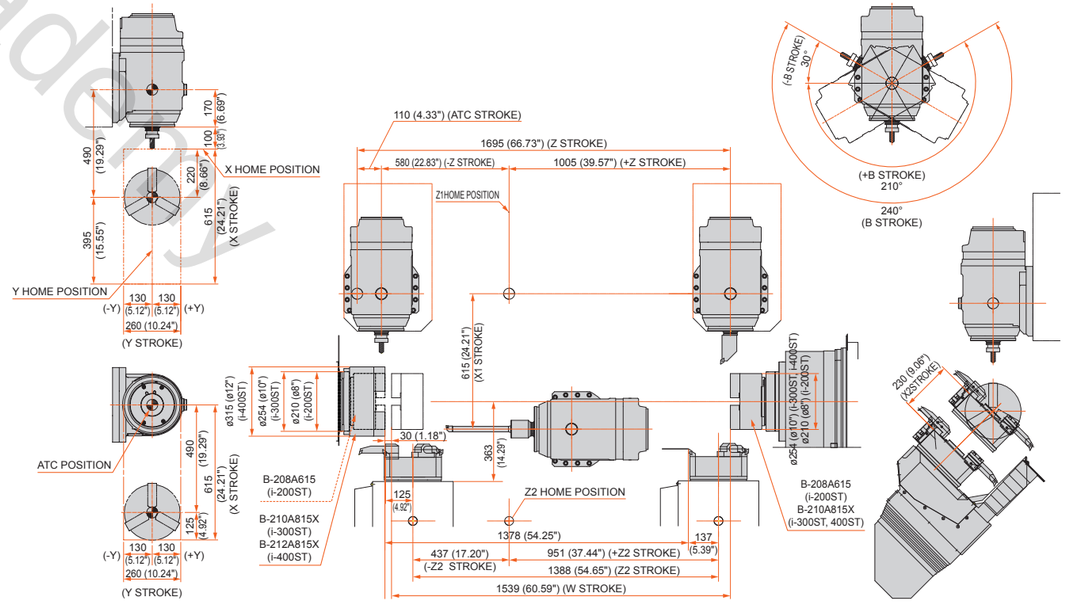
i-200S, 300S, 400S (1500U)



i-200, 300, 400 (1500U)



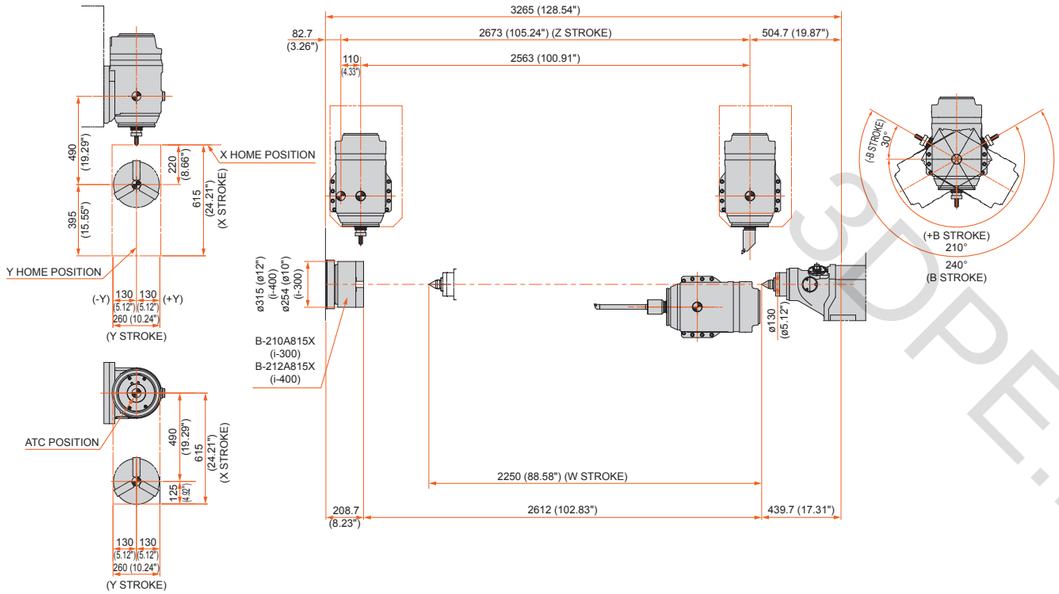
i-200ST, 300ST, 400ST (1500U)



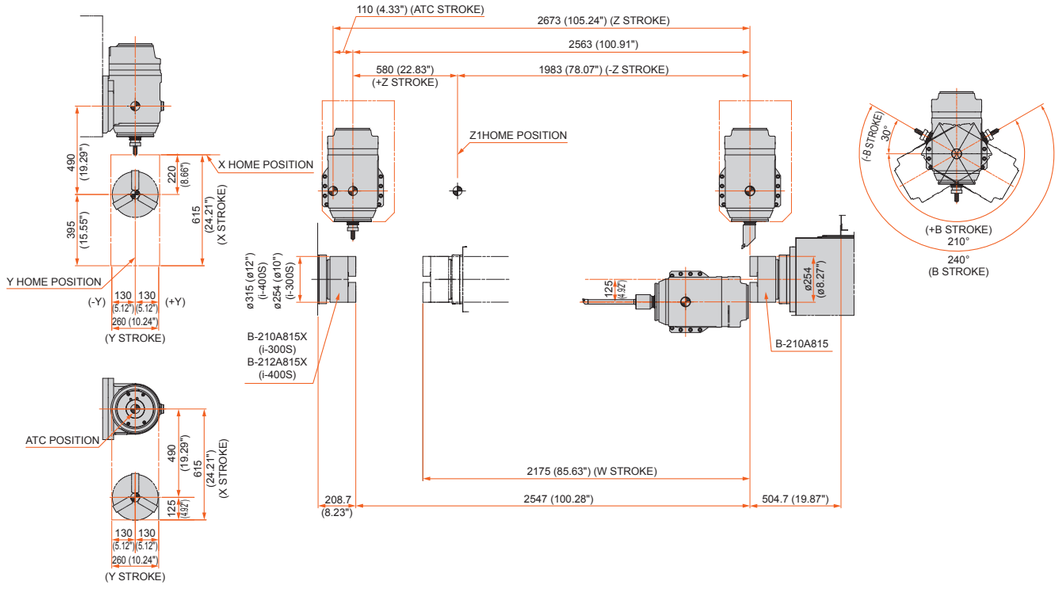
Stroke Diagram

mm (inch)

i-300, 400 (2500U)



i-300S, 400S (2500U)



Standard Machine Specifications

		INTEGREX i-100	INTEGREX i-100S	INTEGREX i-100ST
Capacity	Max. swing / Swing over cross slide	ø530 mm (ø20.9")		
	Max. machining diameter (Upper turret)	ø500 mm (ø19.7")		
	(Lower turret)	—		ø400 mm (ø15.7")
	Max. machining length*1	519 mm (20.43")	854 mm (33.62")	
	Max. bar work capacity*1	ø51 mm (ø2")	Main spindle ø51 mm (ø2") Second spindle ø51 mm (ø2")	
Travel	X-axis travel	450 mm (17.72")		
	Z-axis travel	569 mm (22.4")	904 mm (35.59")	
	Y-axis travel	210 mm (8.27")		
	X2-axis travel (Lower turret)	—		220 mm (8.66")
	Z2-axis travel (Lower turret)	—		903 mm (35.55")
	B-axis travel	-30° ～ 210°		
Main spindle	Chuck size	6"		
	Main spindle speed*1	6000 rpm		
	Main spindle nose	A 2-5		
	Main spindle bore	ø61 mm (ø2.4")		
	Bearing ID	ø90 mm (ø3.54")		
	Minimum main spindle indexing increment	0.0001°		
Second spindle	Chuck size	—	6"	
	Second spindle speed*1	—	6000 rpm	
	Second spindle travel (W-axis)	—	903 mm (35.55")	
	Second spindle nose	—	A 2-5	
	Second spindle bore	—	ø61 mm (ø2.4")	
	Bearing ID	—	ø90 mm (ø3.54")	
	Minimum second spindle indexing increment	—	0.001°	
Milling spindle	Milling spindle type	Single spindle turret with ATC		
	Milling spindle speed	12000 rpm		
	Max. milling spindle torque	49.4 Nm (36.44 ft·lbs)		
	Tool shank height	20 mm (0.75")		
	Boring bar shank diameter	ø32 mm (ø1.25")		
	B-axis minimum indexing increment	0.0001°		
Lower turret	Turret type	—		9 position drum turret
	Number of tools	—		9
	Tool shank height	—		20 mm (0.75")
	Boring bar shank diameter	—		ø32 mm (ø1.26")
	Turret indexing time	—		0.14 sec / 1step
Feedrate	Rapid traverse rate : X-axis	40 m/min (1575 IPM)		
	Rapid traverse rate : Z-axis	40 m/min (1575 IPM)		
	Rapid traverse rate : Y-axis	40 m/min (1575 IPM)		
	Rapid traverse rate : X2-axis (Lower turret)	—		40 m/min (1575 IPM)
	Rapid traverse rate : Z2-axis (Lower turret)	—		40 m/min (1575 IPM)
	Rapid traverse rate : W-axis	8 m/min (315 IPM)	30 m/min (1181 IPM)	
Automatic tool changer system	Tool shank*2	HSK-A 63 (T 63), [CAPTO C 6, KM 63 (Option)]		
	Tool storage capacity	36 tool		
	Max. tool diameter / length (from gauge line)	ø90 mm (ø3.54") (when adjacent pockets empty : ø130 mm (ø5.12")) / 250 mm (9.84")		
	Max. tool weight	5 kg (11 lbs)		
	Tool selection method	Random selection / shortest path		
Tailstock	Center	MT No. 4	—	
	Travel (W-axis)	807 mm (31.77")	—	
Motors	Spindle motor (30 min. rating, 40% ED / Cont. rating)	11 kW (15 HP) / 7.5 kW (10 HP)		
	Second spindle motor (30 min. rating, 40% ED / Cont. rating)	—	11 kW (15 HP) / 7.5 kW (10 HP)	
	Milling spindle motor (30 min. rating, 40% ED / Cont. rating)	7.5 kW (10 HP) / 5.5 kW (7.3 HP)		
Power requirement	Required power capacity (Cont. rating)	26.55 kVA	37.10 kVA	39.69 kVA
	Air source	0.5 MPa (71 PSI), more than 210 L (7.4 ft³) / min	0.5 MPa (71 PSI) more than 250 L (8.83 ft³) / min	0.5 MPa (71 PSI) more than 280 L (9.89 ft³) / min
Coolant	Tank capacity*3	269 L (71 gal)		
Machine size	Machine height	2500 mm (98.5")		
	Floor space requirement	3030 mm × 2635 mm (119.29" × 103.74")		
	Weight	9200 kg (20282 lbs)	9600 kg (21164 lbs)	10100 kg (22266 lbs)

*1 Depending on chuck specifications *2 HSK A-63 '96 DIN not available. *3 Hinge type (option)

Standard Machine Specifications

		INTEGREX i-200		INTEGREX i-200S		INTEGREX i-200ST
		1000U	1500U	1000U	1500U	1500U
Capacity	Max. swing / Swing over cross slide	ø658 mm (ø25.9")				
	Max. machining diameter (Upper turret)	ø658 mm (ø25.9")				
	(Lower turret)	—				ø420 mm (ø16.53")
	Max. machining length*1	1011 mm (39.8")	1519 mm (59.8")	1011 mm (39.8")	1519 mm (59.8")	1519 mm (59.8")
	Max. bar work capacity*1	ø65 mm (ø2.56")		Main spindle ø65 mm (ø2.56") Second spindle ø65 mm (ø2.56")		
Travel	X-axis travel	615 mm (24.21")				
	Z-axis travel	1077 mm (42.4")	1585 mm (62.4")	1077 mm (42.4")	1585 mm (62.4")	1585 mm (62.4")
	Y-axis travel	260 mm (10.24")				
	X2-axis travel (Lower turret)	—				230 mm (9.06")
	Z2-axis travel (Lower turret)	—				1388 mm (54.65")
	B-axis travel	-30° ~ 210°				
Main spindle	Chuck size	8"				
	Main spindle speed*1	5000 rpm				
	Main spindle nose	A 2-6				
	Main spindle bore	ø76 mm (ø3")				
	Bearing ID	ø120 mm (ø4.72")				
	Minimum main spindle indexing increment	0.0001°				
Second spindle	Chuck size	—		8"		
	Second spindle speed*1	—		5000 rpm		
	Second spindle travel (W-axis)	—		1066 mm (41.97")	1574 mm (61.96")	1539 mm (60.59")
	Second spindle nose	—		A 2-6		
	Second spindle bore	—		ø76 mm (ø3")		
	Bearing ID	—		ø120 mm (ø4.72")		
	Minimum second spindle indexing increment	—		0.001°		
Milling spindle	Milling spindle type	Single spindle turret with ATC				
	Milling spindle speed	12000 rpm				
	Max. milling spindle torque	120 N·m (88.5 ft·lbs)				
	Tool shank height	25 mm (1")				
	Boring bar shank diameter	ø40 mm (ø1.5")				
	B-axis minimum indexing increment	0.0001°				
Lower turret	Turret type	—				9 position drum turret
	Number of tools	—				9
	Tool shank height	—				25 mm (1")
	Boring bar shank diameter	—				ø32 mm (ø1.25")
	Turret indexing time	—				0.14 sec. / 1 step
Feedrate	Rapid traverse rate : X-axis	50 m/min (1969 IPM)				
	Rapid traverse rate : Z-axis	50 m/min (1969 IPM)				
	Rapid traverse rate : Y-axis	40 m/min (1575 IPM)				
	Rapid traverse rate : X2-axis (Lower turret)	—				40 m/min (1575 IPM)
	Rapid traverse rate : Z2-axis (Lower turret)	—				40 m/min (1575 IPM)
	Rapid traverse rate : W-axis	8 m/min (315 IPM)		30 m/min (1181 IPM)		
Automatic tool changer system	Tool shank*2	HSK-A 63 (T 63), [CAPTO C 6, KM 63 (Option)]				
	Tool storage capacity	36 tools				
	Max. tool diameter / length (from gauge line)	ø90 mm (ø3.54") (when adjacent pockets empty : ø125 mm (ø4.92")) / 400 mm (15.75")				
	Max. tool weight	12 kg (24.46 lbs)				
	Tool selection method	Random selection / shortest path				
Tailstock	Center	MT No. 5		—		
	Travel (W-axis)	1026 mm (40.39")	1562 mm (40.39")	—		
Motors	Spindle motor (30 min. rating, 40% ED / Cont. rating)	22 kW (30 HP) / 15 kW (20 HP)				
	Second spindle motor (30 min. rating, 40% ED / Cont. rating)	—		18.5 kW (25 HP) / 15 kW (20 HP)		
	Milling spindle motor (30 min. rating, 40% ED / Cont. rating)	22 kW (30 HP) / 15 kW (20 HP)				
Power requirement	Required power capacity (Cont. rating)	46.04 kVA		66.39 kVA		72.34 kVA
	Air source	0.5 MPa (71 PSI), more than 350 L (12.4 ft³) / min		0.5 MPa (71 PSI), more than 410 L (14.5 ft³) / min		0.5 MPa (71 PSI), 410 L (14.5 ft³) / min (ANR)
Coolant	Tank capacity	377 L (100 gal)	510 L (135 gal)	377 L (100 gal)	510 L (135 gal)	510 L (135 gal)
Machine size	Machine height	2720 mm (107.1")				
	Floor space requirement	3990 mm × 2800 mm (157.09" × 110.24")	4910 mm × 2800 mm (193.31" × 110.24")	3990 mm × 2800 mm (157.09" × 110.24")	4910 mm × 2800 mm (193.31" × 110.24")	4910 mm × 2800 mm (193.31" × 110.24")
	Weight	12800 kg (28219 lbs)	14900 kg (32848 lbs)	13100kg (28881 lbs)	15200 kg (33510 lbs)	16600kg (36596 lbs)

*1 Depending on chuck specifications *2 HSK A-63 '96 DIN not available.

		INTEGREX i-300			INTEGREX i-300S		INTEGREX i-300ST
		1000U	1500U	2500U	1500U	2500U	1500U
Capacity	Max. swing / Swing over cross slide	ø658 mm (ø25.9")					
	Max. machining diameter (Upper turret)	ø658 mm (ø25.9")					
	(Lower turret)	—					ø420 mm (ø16.53")
	Max. machining length*1	1011 mm (39.8")	1519 mm (59.8")	2497 mm (98.31")	1519mm (59.8")	2497 mm (98.31")	1519mm (59.8")
	Max. bar work capacity*1	Main spindle ø80 mm (ø3.15")					
Travel	X-axis travel	615 mm (24.21")					
	Z-axis travel	1077 mm (42.4")	1585 mm (62.4")	2563 mm (100.91")	1585 mm (62.4")	2563 mm (100.91")	1585 mm (62.4")
	Y-axis travel	260 mm (10.24")					
	X2-axis travel (Lower turret)	—					230 mm (9.06")
	Z2-axis travel (Lower turret)	—					1388 mm (54.65")
	B-axis travel	-30° ~ 210°					
Main spindle	Chuck size	10"					
	Main spindle speed*1	4000 rpm					
	Main spindle nose	A 2-8					
	Main spindle bore	ø91 mm (ø3.58")					
	Bearing ID	ø130mm (ø5.12")					
	Minimum main spindle indexing increment	0.0001°					
Second spindle	Chuck size	—			10"		
	Second spindle speed*1	—			4000 rpm		
	Second spindle travel (W-axis)	—			1574 mm (61.97")	2175 mm (85.63")	1539 mm (60.59")
	Second spindle nose	—			A 2-8		
	Second spindle bore	—			ø91 mm (ø3.58")		
	Bearing ID	—			ø130 mm (ø5.12")		
	Minimum second spindle indexing increment	—			0.001°		
Milling spindle	Milling spindle type	Single spindle turret with ATC					
	Milling spindle speed	12000 rpm					
	Max. milling spindle torque	120 N·m(88.5 ft·lbs)					
	Tool shank height	25 mm (1")					
	Boring bar shank diameter	ø40 mm (ø1.5")					
	B-axis minimum indexing increment	0.0001°					
Lower turret	Turret type	—					9 position drum turret
	Number of tools	—					9
	Tool shank height	—					25 mm (1")
	Boring bar shank diameter	—					ø32 mm (ø1.25")
	Turret indexing time	—					0.14 sec. / 1 step
Feedrate	Rapid traverse rate : X-axis	50 m/min (1969 IPM)					
	Rapid traverse rate : Z-axis	50 m/min (1969 IPM)		40 m/min (1575 IPM)	50 m/min (1969 IPM)	40 m/min (1575 IPM)	50 m/min (1969 IPM)
	Rapid traverse rate : Y-axis	40 m/min (1575 IPM)					
	Rapid traverse rate : X2-axis (Lower turret)	—					40 m/min (1575 IPM)
	Rapid traverse rate : Z2-axis (Lower turret)	—					40 m/min (1575 IPM)
	Rapid traverse rate: W-axis	8 m/min (315 IPM)			30 m/min (1181 IPM)		
Automatic tool changer system	Tool shank*2	HSK-A 63 (T 63), [CAPTO C 6, KM 63 (Option)]					
	Tool storage capacity	36 tools					
	Max. tool diameter / length (from gauge line)	ø90 mm (ø3.54") (when adjacent pockets empty : ø125 mm (ø4.92")) / 400 mm (15.75")					
	Max. tool weight	12 kg (26.46 lbs)					
	Tool selection method	Random selection / shortest path					
Tailstock	Center	MT No. 5			—		
	Travel (W-axis)	1026 mm (40.39")	1562 mm (61.50")	2250 mm (88.58")	—		
Motors	Spindle motor (30 min. rating, 40% ED / Cont. rating)	30 kW (40 HP) / 22 kW (30 HP)					
	Second spindle motor (30 min. rating, 40% ED / Cont. rating)	—			26 kW (35 HP) / 22 kW (30 HP)		
	Milling spindle motor (30 min. rating, 40% ED / Cont. rating)	22 kW (30 HP) / 15 kW (20 HP)					
Power requirement	Required power capacity (Cont. rating)	57.01 kVA		61.17 kVA	85.79 kVA	88.97 kVA	92.14 kVA
	Air source	0.5 MPa (71 PSI), more than 350 L (12.4 ft³) / min			0.5 MPa (71 PSI), more than 410 L (14.5 ft³) / min		
Coolant	Tank capacity	377 L (100 gal)	510 L (135 gal)	670 L (177 gal)	510 L (135 gal)	670 L (177 gal)	510 L (135 gal)
Machine size	Machine height	2720 mm (107.01")		2770 mm (109.06")	2720 mm (107.01")	2770 mm (109.06")	2720 mm (107.01")
	Floor space requirement	4070 mm × 2800 mm (160.24" × 110.24")	4910 mm × 2800 mm (193.31" × 110.24")	6100 mm × 2800 mm (240.16" × 110.24")	4910 mm × 2800 mm (193.31" × 110.24")	6100 mm × 2800 mm (240.16" × 110.24")	4910 mm × 2800 mm (193.31" × 110.24")
	Weight	13100 kg (28881 lbs)	15200 kg (33510 lbs)	18050 kg (39793lbs)	15500 kg (34172 lbs)	18350 kg (40454 lbs)	16900kg (37258 lbs)

*1 Depending on chuck specifications *2 HSK A-63 '96 DIN not available.

Standard Machine Specifications

		INTEGREX i-400			INTEGREX i-400S		INTEGREX i-400ST
		1000U	1500U	2500U	1500U	2500U	1500U
Capacity	Max. swing / Swing over cross slide	ø658 mm (ø25.9")					
	Max. machining diameter (Upper turret)	ø658 mm (ø25.9")					
	(Lower turret)	—					ø420 mm (ø16.53")
	Max. machining length*1	1011 mm (39.8")	1519 mm (59.8")	2497 mm (98.31")	1519mm (59.8")	2497 mm (98.31")	1519mm (59.8")
	Max. bar work capacity*1	ø102 mm (ø4.02")			Main spindle ø102 mm (ø4.02")		
Travel	X-axis travel	615 mm (24.21")					
	Z-axis travel	1077 mm (42.4")	1585 mm (62.4")	2563 mm (100.91")	1585 mm (62.4")	2563 mm (100.91")	1585 mm (62.4")
	Y-axis travel	260 mm (10.24")					
	X2-axis travel (Lower turret)	—					230 mm (9.06")
	Z2-axis travel (Lower turret)	—					1388 mm (54.65")
	B-axis travel	-30° ～ 210°					
Main spindle	Chuck size	12"					
	Main spindle speed*1	3300 rpm					
	Main spindle nose	A 2-8					
	Main spindle bore	ø112 mm (ø4.41")					
	Bearing ID	ø150 mm (ø5.91")					
	Minimum main spindle indexing increment	0.0001°					
Second spindle	Chuck size	—			10"		
	Second spindle speed*1	—			4000 rpm		
	Second spindle travel (W-axis)	—			1574 mm (61.97")	2175 mm (85.63")	1539 mm (60.59")
	Second spindle nose	—			A 2-8		
	Second spindle bore	—			ø91 mm (ø3.58")		
	Bearing ID	—			ø130 mm (ø5.12")		
	Minimum second spindle indexing increment	—			0.001°		
Milling spindle	Milling spindle type	Single spindle turret with ATC					
	Milling spindle speed	12000 rpm					
	Max. milling spindle torque	120 N·m (88.5 ft·lbs)					
	Tool shank height	25 mm (1")					
	Boring bar shank diameter	ø40 mm (ø1.5")					
	B-axis minimum indexing increment	0.0001°					
Lower turret	Turret type	—					9 position drum turret
	Number of tools	—					9
	Tool shank height	—					25 mm (1")
	Boring bar shank diameter	—					ø32 mm (ø1.25")
	Turret indexing time	—					0.14 sec. / 1 step
Feedrate	Rapid traverse rate : X-axis	50 m/min (1969 IPM)					
	Rapid traverse rate : Z-axis	50 m/min (1969 IPM)		40 m/min (1575 IPM)	50 m/min (1969 IPM)	40 m/min (1575 IPM)	50 m/min (1969 IPM)
	Rapid traverse rate : Y-axis	40 m/min (1575 IPM)					
	Rapid traverse rate : X2-axis (Lower turret)	—					40 m/min (1575 IPM)
	Rapid traverse rate : Z2-axis (Lower turret)	—					40 m/min (1575 IPM)
	Rapid traverse rate: W-axis	8 m/min (315 IPM)			30 m/min (1181 IPM)		
Automatic tool changer system	Tool shank*2	HSK-A 63 (T 63), 〔CAPTO C 6, KM 63(Option)〕					
	Tool storage capacity	36 tools					
	Max. tool diameter / length (from gauge line)	ø90 mm (ø3.54") (when adjacent pockets empty : ø125 mm (ø4.92")) / 400 mm (15.75")					
	Max. tool weight	12 kg (26.46 lbs)					
	Tool selection method	Random selection / shortest path					
Tailstock	Center	MT No. 5					
	Travel (W-axis)	1026 mm (40.39")	1562 mm (61.50")	2250 mm (88.58")			
Motors	Spindle motor (30 min. rating, 40% ED / Cont. rating)	30 kW (40 HP) / 22 kW (30 HP)					
	Second spindle motor (30 min. rating, 40% ED / Cont. rating)	—			26 kW (35 HP) / 22 kW (30 HP)		
	Milling spindle motor (30 min. rating, 40% ED / Cont. rating)	22 kW (30 HP) / 15 kW (20 HP)					
Power requirement	Required power capacity (Cont. rating)	57.01 kVA		61.17 kVA	85.79 kVA	88.97 kVA	92.14 kVA
	Air source	0.5 MPa (71 PSI), more than 350 L (12.4 ft³) / min			0.5 MPa (71 PSI), more than 410 L (14.5 ft³) / min		
Coolant	Tank capacity	377 L (100 gal)	510 L (135 gal)	670 L (177 gal)	510 L (135 gal)	670 L (177 gal)	510 L (135 gal)
Machine size	Machine height	2720 mm (107.01")		2770 mm (109.06")	2720 mm (107.01")	2770 mm (109.06")	2720 mm (107.01")
	Floor space requirement	4380 mm × 2800 mm (172.44" × 110.24")	5200 mm × 2800 mm (204.72" × 110.24")	6390 mm × 2800 mm (251.57" × 110.24")	5200 mm × 2800 mm (204.72" × 110.24")	6390 mm × 2800 mm (251.57" × 110.24")	5200 mm × 2800 mm (204.72" × 110.24")
	Weight	13400 kg (29542 lbs)	15500 kg (34172 lbs)	18350 kg (40454 lbs)	15800 kg (34833 lbs)	18650 kg (41116 lbs)	17200kg (37919 lbs)

*1 Depending on chuck specifications *2 HSK A-63 '96 DIN not available.

MAZATROL SmoothX Specifications

	MAZATROL	EIA
Number of controlled axes	Simultaneous 2 ～ 4 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 error designation, Smooth corner control, Rapid traverse override, Rotational-shape correction	Shape error designation, Smooth corner control, Rapid traverse override, Rotational-shape correction, High-speed machining mode, High-speed smoothing control function, *5-axis spline
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, *Synchronized milling spindle 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 corrdinate interpolation, *Re-threading, *Override threading, *Override variable threading, *Synchronized milling spindle 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	
Control display	Display : 19" touch paanel, Resolution : SXGA	
Spindle function	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 life monitoring (wear)	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), 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 pre-filter, Angled surface cutting, *Polygon cutting, *Hobbing, *Shaping, *Dynamic compensation Ⅱ, *Tool nose point control, *Tool diameter compensation for 5-axis machining, *Workpiece positioning error compensation, *Tool axis direction / tool length measurement
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 axis, INTELLIGENT SAFETY SHIELD (manual), INTELLIGENT SAFETY SHIELD (automatic), MAZAK VOICE ADVISER	
Automatic operation mode	Memory operation	Memory operation, Tape operation, MDI operation, Ethernet operation
Automatic operation control	Optional stop, Dry run, Automatic handle control, MDI control, TPS, Restart, Single process, Machine lock	Optional block skip, Optional stop, Dry run, Automatic handle control, MDI control, TPS, Restart, Restart 2, Collation stop, Machine lock
Manual measuring function	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 coordinates measurement, Measurement on machine, Tool eye measurement
Automatic measuring function	WPC coordinate measurement, Automatic tool length measurement, Workpiece measurement, Sensor calibration, Tool eye auto tool measurement, Tool breakage detection, *External tool breakage detection	Automatic tool length measurement, Workpiece measurement, Sensor calibration, Tool eye auto tool measurement, Tool breakage detection, *External tool breakage detection
MDI measurement	Coordinate measurement	
Peripheral network	*PROFIBUS-DP, *EtherNet I/P, *CC-Link	
Memory	SD card interface, USB	
EtherNet	10M / 100M / 1Gbps	

* Option

Standard and Optional Equipment

● : Standard ○ : Option — : N/A

		i-100	S	ST
Machine	Main spindle 6000 rpm	●	●	●
	Second spindle 6000 rpm	—	●	●
	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	—	○	○
	9D lower turret	—	—	●
	Main spindle hydraulic chuck (6" through-hole chuck B-206A515)	●	●	●
	Main spindle hydraulic chuck (6" through-hole chuck BB-206)	○	○	○
	Second spindle hydraulic chuck (6" through-hole chuck B-206 + non-through-hole cylinder)	—	●	●
	Second spindle hydraulic chuck (6" through-hole chuck BB-206 + non-through-hole cylinder)	—	○	○
	Work stopper inside of spindle	○	○	○
	Y-axis control	●	●	●
	B-axis 0.0001°indexing / contouring (EIA)	●	●	●
	HSK rotary tool spindle 12000 rpm	●	●	●
	Rotary tool spindle 20000 rpm (HSK only)	○	○	○
	CAPTO / KM milling spindle	○	○	○
	36 tool magazine	●	●	●
	72 tool magazine	○	○	○
	NC tailstock	●	—	—
	Programmable tailstock thrust	●	—	—
	Rotary center NSK / LC4X-7W (4000 rpm)	○	—	—
	Rotary center NSK / LC-4A (2500 rpm)	○	—	—
	Tailstock MT4 Dead center	●	—	—
	Work light	●	●	●
	High / Low chuck pressure (Main spindle)	○	○	○
	High / Low chuck pressure (Second spindle)	—	○	○
	Double foot pedal chuck switch	○	○	○
	3 color machine status light	○	○	○
	1 color machine status light (Yellow : Operation end)	○	○	○
	1 color machine status light (Red : Alarm)	○	○	○
High accuracy	X-axis and Z-axis ball screw core cooling	●	●	●
	Y -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 / Z2-axis for lower turret)	—	—	○
	Absolute position detection (linear axes)	●	●	●
Safety equipment	Hydraulic pressure interlock	●	●	●
	Operator door interlock	●	●	●
	Overload detection system	○	○	○
	Tool breakage detection	○	○	○

		i-100	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 finish buzzer	○	○	○
	Preparation for visual tool management / tool ID	○	○	○
	Gantry loader GL-50F / 75F	○	○	○
	Automatic parts catcher ø51 mm × L100 mm × 2.5 kg (ø2" × L3.9" × 5.5 lbs)	○	○	○
	Robot interface	○	○	○
	Bar feeder interface	○	○	○
Coolant / Chip disposal	Cover coolant	●	●	●
	Flood coolant	●	●	●
	Simultaneous discharge of 0.5 MPa (70 PSI) coolant through spindle and flood coolant (upper turret)	●	●	●
	Simultaneous discharge of 1.5 MPa (220 PSI) high-pressure coolant through spindle and flood coolant (upper turret)	○	○	○
	Simultaneous discharge of 3.5 MPa (500 PSI) high-pressure coolant through spindle and flood coolant (upper turret)	○	○	○
	Simultaneous discharge of 7 MPa (1000 PSI) magnum coolant and flood coolant (upper turret)	○	○	○
	Flood coolant for lower turret, 0.37 MPa (50 PSI)	—	—	●
	Shower coolant	○	○	○
	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)	—	●	●
	Chip pan (without chip conveyor)	●	●	●
	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 conveyor (rear disposal · spiral)	○	○	○
	Chip bucket (rotating)	○	○	○
	Chip bucket (fixed)	○	○	○
Others	Manual grease applicator	○	○	○
	Manual CD	●	●	●
	Additional manuals (CD or paper)	○	○	○

● : Standard ○ : Option — : N/A

		i-200	S	ST
Machine	Main spindle 5000 rpm	●	●	●
	Second spindle 5000 rpm	—	●	●
	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	—	○	○
	9D lower turret	—	—	●
	Lower turret (rotary tools)	—	—	○
	Main spindle hydraulic chuck (8" through-hole chuck H3KS8)	○	—	—
	Main spindle hydraulic chuck (8" non-through-hole chuck N-08A0615)	○	—	—
	Main spindle hydraulic chuck (8" through-hole chuck B-208A615)	●	●	●
	Main spindle hydraulic chuck (8" through-hole chuck BB-08)	○	○	○
	Main spindle hydraulic chuck (10" through-hole chuck B-210A615)	○	○	○
	Second spindle hydraulic chuck (8" through-hole chuck B-208)	—	●	●
	Work stopper inside of spindle	○	○	○
	Y-axis control	●	●	●
	B-axis 0.0001°indexing / contouring (EIA)	●	●	●
	HSK rotary tool spindle 12000 rpm	●	●	●
	Rotary tool spindle 20000 rpm (HSK only)	○	○	○
	CAPTO / KM milling spindle	○	○	○
	36 tool magazine	●	●	●
	72 tool magazine	○	○	○
	110 tool magazine	○	○	○
	NC tailstock (Built-in MT5)	●	—	—
	Programmable tailstock thrust	●	—	—
	Steady rest	○	○	○
	Work light	●	●	●
	High/Low chuck pressure (Main spindle)	○	○	○
	High/Low chuck pressure (Second spindle)	—	○	○
	Double foot pedal chuck switch	○	○	○
	3 color machine status light	○	○	○
	1 color machine status light (Yellow: Operation end)	○	○	○
	1 color machine status light (Red: Alarm)	○	○	○
High accuracy	X-axis ball screw core cooling	●	●	●
	Y -axis and Z-axis ball screw core cooling	○	○	○
	Mazak monitoring system B (RMP60)	○	○	○
	Preparation for Mazak monitoring system B (RMP60)	○	○	○
	Scale feedback (B-axis)	●	●	●
	Scale feedback (X, Y, Z-axis)	○	○	○
	Scale feedback (X2/Z2-axis for lower turret)	—	—	○
	Absolute position detection (linear axes)	●	●	●
Safety equipment	Hydraulic pressure interlock	●	●	●
	Operator door interlock	●	●	●
	Overload detection system	○	○	○
	Tool breakage detection	○	○	○

		i-200	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 finish buzzer	○	○	○
	Preparation for visual tool management / tool ID	○	○	○
	Gantry loader GL-100F / 150F	○	○	○
	Automatic parts catcher ø65 mm × L120 mm × 2.5 kg (ø2.52" × L4.7" × 5.5 lbs)	○	○	○
	Robot interface	○	○	○
	Bar feeder interface	○	○	○
Coolant / Chip disposal	Cover coolant	●	●	●
	Flood coolant	●	●	●
	Simultaneous discharge of 0.5 MPa (70 PSI) coolant through spindle and flood coolant (upper turret)	●	●	●
	Simultaneous discharge of 1.5 MPa (220 PSI) high-pressure coolant through spindle and flood coolant (upper turret)	○	○	○
	Simultaneous discharge of 3.5 MPa (500 PSI) high-pressure coolant through spindle and flood coolant (upper turret)	○	○	○
	Simultaneous discharge of 7 MPa (1000 PSI) magnum coolant and flood coolant (upper turret)	○	○	○
	Flood coolant for lower turret, 0.37 MPa (50 PSI)	—	—	●
	Shower coolant	○	○	○
	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	Manual grease applicator	○	○	○
	Manual CD	●	●	●
	Additional manuals (CD or paper)	○	○	○

Standard and Optional Equipment

● : Standard ○ : Option — : N/A

		i-300		
			S	ST
Machine	Main spindle 4000 rpm	●	●	●
	Second spindle 4000 rpm	—	●	●
	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	—	○	○
	9D lower turret	—	—	●
	Lower turret (rotary tools)	—	—	○
	Main spindle hydraulic chuck (10" through-hole chuck B-210A0815X)	●	●	●
	Main spindle hydraulic chuck (12" through-hole chuck B-212A0815)	○	○	○
	Second spindle hydraulic chuck (10" through-hole chuck B-210)	—	●	●
	Work stopper inside of spindle	○	○	○
	Y-axis control	●	●	●
	B-axis 0.0001°indexing / contouring (EIA)	●	●	●
	HSK rotary tool spindle 12000 rpm	●	●	●
	Rotary tool spindle 20000 rpm (HSK only)	○	○	○
	CAPTO / KM milling spindle	○	○	○
	36 tool magazine	●	●	●
	72 tool magazine	○	○	○
	110 tool magazine	○	○	○
	NC tailstock	●	—	—
	Programmable tailstock thrust	●	—	—
	Steady rest	○	○	○
	Work light	●	●	●
	High / Low chuck pressure (Main spindle)	○	○	○
	High / Low chuck pressure (Second spindle)	—	○	○
	Double foot pedal chuck switch	○	○	○
	3 color machine status light	○	○	○
	1 color machine status light (Yellow : Operation end)	○	○	○
	1 color machine status light (Red : Alarm)	○	○	○
High accuracy	X-axis ball screw core cooling	●	●	●
	Y-axis and 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 / Z2-axis for lower turret)	—	—	○
	Absolute position detection (linear axes)	●	●	●
Safety equipment	Hydraulic pressure interlock	●	●	●
	Operator door interlock	●	●	●
	Overload detection system	○	○	○
	Tool breakage detection	○	○	○

		i-300		
			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 finish buzzer	○	○	○
	Preparation for visual tool management / tool ID	○	○	○
	Gantry loader GL-200F / 300F / 400F	○	○	○
	Automatic parts catcher ø80 mm × L150 mm × 5 kg (ø3.15" × L5.9" × 11 lbs)	○	○	○
	Robot interface	○	○	○
	Bar feeder interface	○	○	○
Coolant / Chip disposal	Cover coolant	●	●	●
	Flood coolant	●	●	●
	Simultaneous discharge of 0.5 MPa (70 PSI) coolant through spindle and flood coolant (upper turret)	●	●	●
	Simultaneous discharge of 1.5 MPa (220 PSI) high-pressure coolant through spindle and flood coolant (upper turret)	○	○	○
	Simultaneous discharge of 3.5 MPa (500 PSI) high-pressure coolant through spindle and flood coolant (upper turret)	○	○	○
	Simultaneous discharge of 7 MPa (1000 PSI) magnum coolant and flood coolant (upper turret)	○	○	○
	Flood coolant for lower turret, 0.37 MPa (50 PSI)	—	—	●
	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	Manual grease applicator	○	○	○
	Manual CD	●	●	●
	Additional manuals (CD or paper)	○	○	○

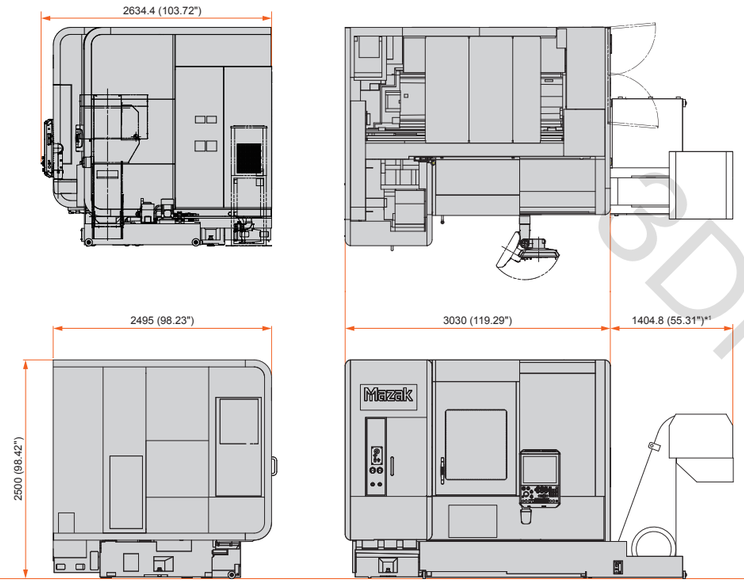
		i-400		
			S	ST
Machine	Main spindle 3300 rpm	●	●	●
	Second spindle 4000 rpm	—	●	●
	Main spindle 0.0001°indexing·C-axis control	●	●	●
	Second spindle 0.001°indexing (without C-axis)	—	●	●
	Second spindle 0.0001°indexing·C-axis control / synchronization function	—	○	○
	9D lower turret	—	—	●
	Lower turret (rotary tools)	—	—	○
	Main spindle hydraulic chuck (12" through-hole chuck B-212A0815X)	●	●	●
	Main spindle hydraulic chuck (15" through-hole chuck B-15A0815)	○	○	○
	Second spindle hydraulic chuck (10" through-hole chuck B-210)	—	●	●
	Work stopper inside of spindle	○	○	○
	Y-axis control	●	●	●
	B-axis 0.0001°indexing / contouring (EIA)	●	●	●
	HSK rotary tool spindle 12000 rpm	●	●	●
	Rotary tool spindle 20000 rpm (HSK only)	○	○	○
	CAPTO / KM milling spindle	○	○	○
	36 tool magazine	●	●	●
	72 tool magazine	○	○	○
	110 tool magazine	○	○	○
	NC tailstock	●	—	—
	Programmable tailstock thrust	●	—	—
	Steady rest	○	○	○
	Work light	●	●	●
	High / Low chuck pressure (Main spindle)	○	○	○
	High / Low chuck pressure (Second spindle)	—	○	○
	Double foot pedal chuck switch	○	○	○
	3 color machine status light	○	○	○
	1 color machine status light (Yellow : Operation end)	○	○	○
	1 color machine status light (Red : Alarm)	○	○	○
High accuracy	X-axis ball screw core cooling	●	●	●
	Y-axis and 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 / Z2-axis for lower turret)	—	—	○
	Absolute position detection (linear axes)	●	●	●
Safety equipment	Hydraulic pressure interlock	●	●	●
	Operator door interlock	●	●	●
	Overload detection system	○	○	○
	Tool breakage detection	○	○	○

		i-400		
			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 finish buzzer	○	○	○
	Preparation for visual tool management / tool ID	○	○	○
	Gantry loader GL-200F / 300F / 400F	○	○	○
	Automatic parts catcher ø102 mm × L150 mm × 5 kg (ø4.02" × L5.9" × 11 lbs)	○	○	○
	Robot interface	○	○	○
	Bar feeder interface	○	○	○
Coolant / Chip disposal	Cover coolant	●	●	●
	Flood coolant	●	●	●
	Simultaneous discharge of 0.5 MPa (70 PSI) coolant through spindle and flood coolant (upper turret)	●	●	●
	Simultaneous discharge of 1.5 MPa (220 PSI) high-pressure coolant through spindle and flood coolant (upper turret)	○	○	○
	Simultaneous discharge of 3.5 MPa (500 PSI) high-pressure coolant through spindle and flood coolant (upper turret)	○	○	○
	Simultaneous discharge of 7 MPa (1000 PSI) magnum coolant and flood coolant (upper turret)	○	○	○
	Flood coolant for lower turret, 0.37 MPa (50 PSI)	—	—	●
	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	Manual grease applicator	○	○	○
	Manual CD	●	●	●
	Additional manuals (CD or paper)	○	○	○

Machine Dimensions

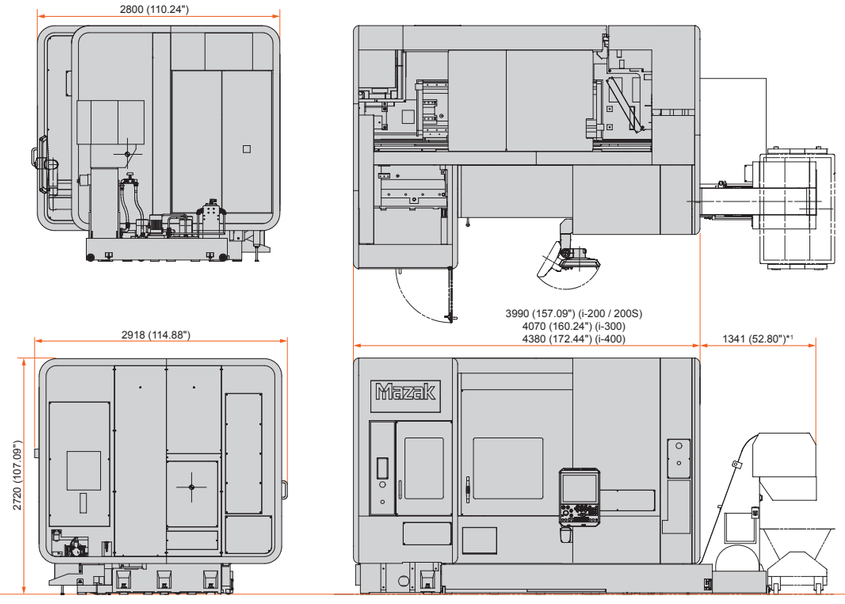
mm (inch)

i-100, 100S, 100ST



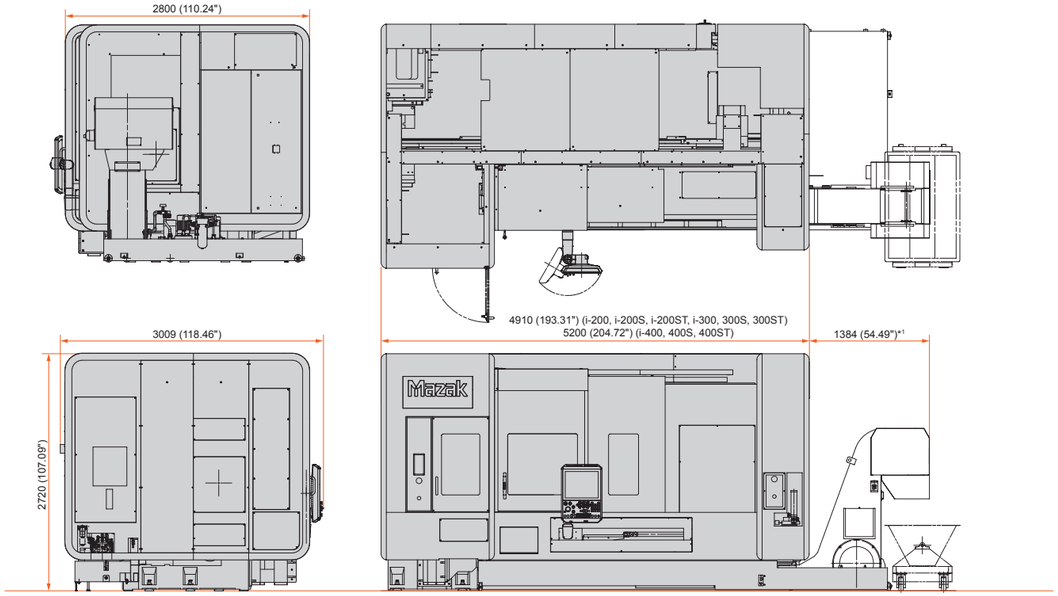
*1 1404.8 mm (55.31") is dimension with optional chip conveyor, will vary according to the type of chip conveyor.

i-200, 200S, 300, 400 (1000U)



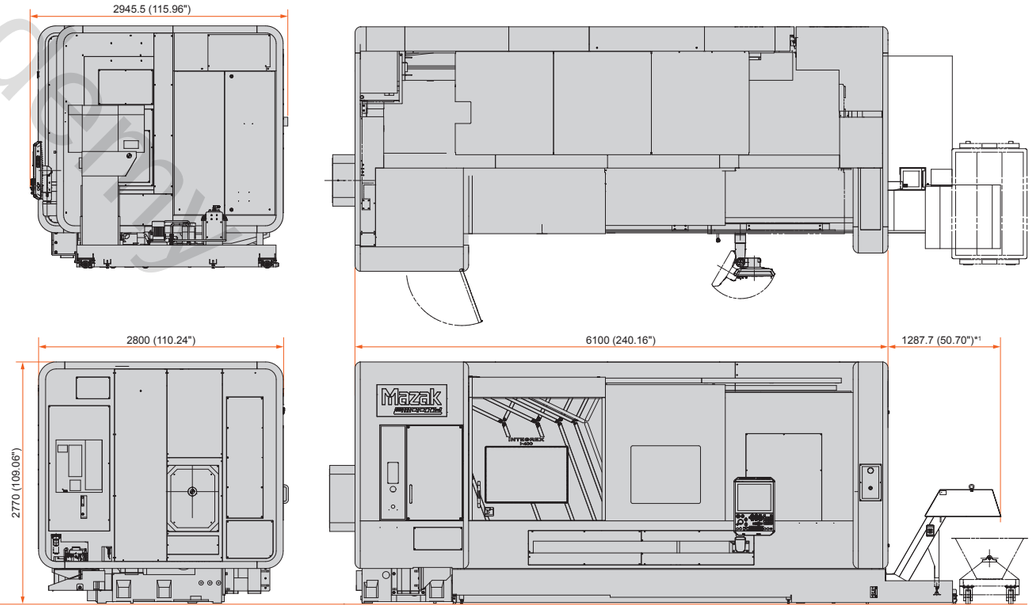
*1 1341 mm(52.80") is dimension with optional chip conveyor, will vary according to the type of chip conveyor.

i-200, 200S, 200ST, 300, 300S, 300ST, 400, 400S, 400ST (1500U)



*1 1384 mm (54.49") is dimension with optional chip conveyor, will vary according to the type of chip conveyor.

i-300, 300S, 400, 400S (2500U)



*1 1287.7 mm (50.70") is dimension with optional chip conveyor, will vary according to the type of chip conveyor.

INTEGREX i SERIES

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