

Mazak

# INTEGREX i

SERIES





The INTEGREX i Series –  
Incorporating the extensive expertise accumulated  
in the production of Multi-Tasking machines  
for more than 30 years

Wide range of specifications and options to meet your production requirements

Large Y-axis strokes for expanded machining capabilities

Unsurpassed versatility thanks to DONE IN ONE® processing



INTEGREX i-400S (1500U) shown with optional status light

INTEGREX i-300, i-400 Series

Y-axis stroke: 260 mm (10.24") (±130 mm) (±5.12")

Milling spindle: 12000 rpm [22 kW (30 hp) (40% ED/30-min. rating)]

12000 rpm (option) [24 kW (32 hp) (40% ED/30-min. rating)]

20000 rpm (option) [15 kW (20 hp) (40% ED/30-min. rating)]

20000 rpm (option) [22 kW (30 hp) (40% ED/30-min. rating)]



INTEGREX i-200 (1000U)

INTEGREX i-200 Series

Y-axis stroke: 260 mm (10.24") (±130 mm) (±5.12")

Milling spindle: 12000 rpm [22 kW (30 hp) (40% ED/30-min. rating)]

12000 rpm (option) [24 kW (32 hp) (40% ED/30-min. rating)]

20000 rpm (option) [15 kW (20 hp) (40% ED/30-min. rating)]

20000 rpm (option) [22 kW (30 hp) (40% ED/30-min. rating)]



INTEGREX i-100ST shown with optional status light

INTEGREX i-100 Series

Y-axis stroke: 210 mm (8.27") (±105 mm) (±4.13")

Milling spindle: 12000 rpm [7.5 kW (10 hp) (40% ED/30-min. rating)]

20000 rpm (option) [5.5 kW (7 hp) (10% ED)]

Advanced Multi-Tasking machine

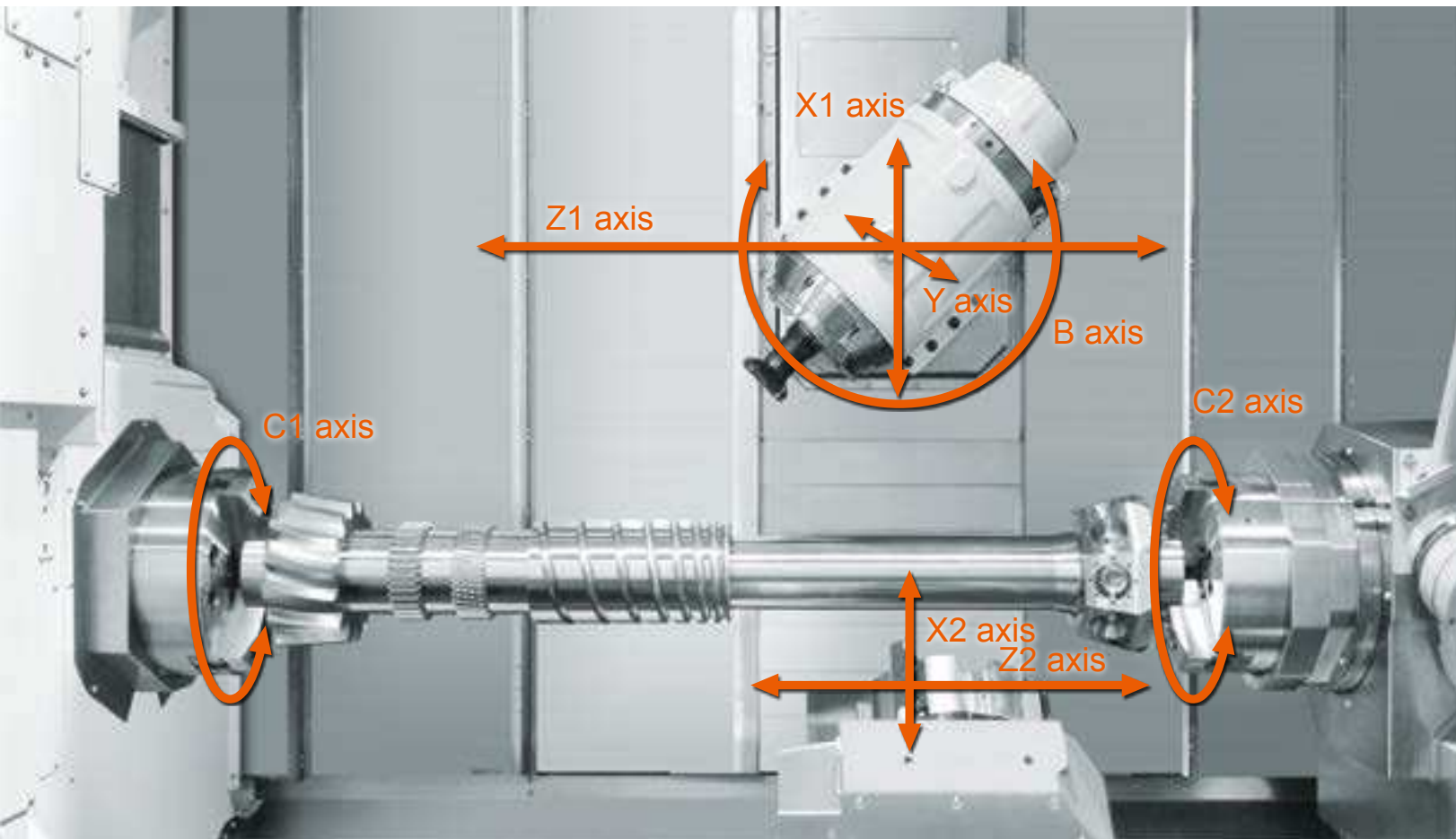
# INTEGREX i SERIES



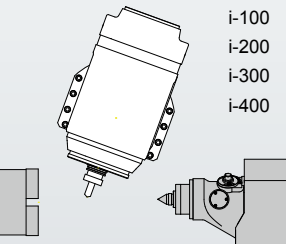
# Higher Productivity & Higher Accuracy

## Multi-Tasking machines you can use with confidence

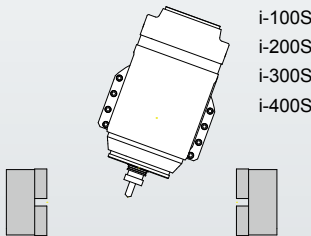
High-power cutting performance comparable to that of machining centers,  
with long Y-axis strokes that effectively cover a wide range of application needs.



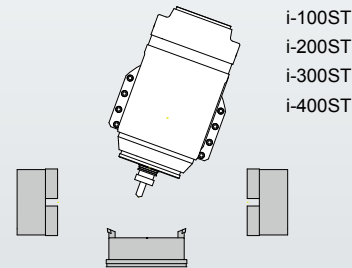
With tail stock



With second spindle



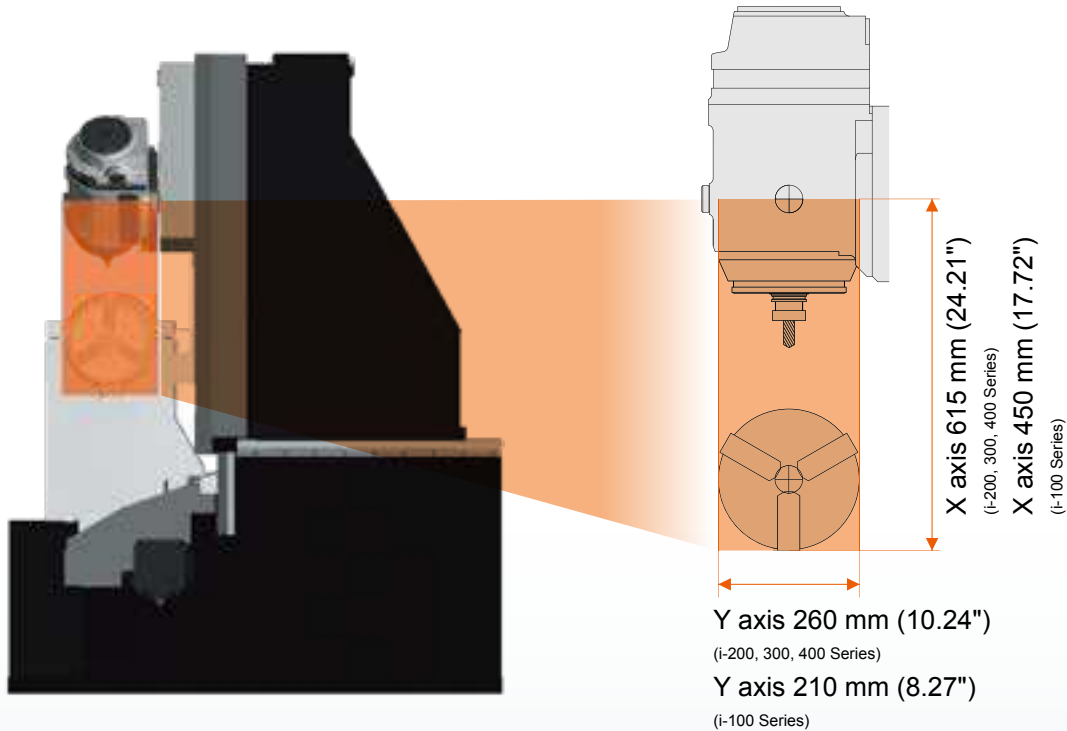
With second spindle + lower turret



## Orthogonal design provides large machining area and high-accuracy machining

### Large machining area and high-rigidity construction

The orthogonal Y-axis structure of the INTEGREX i Series provides a large machining area and high rigidity to ensure high-accuracy machining.



### Large Y-axis strokes expand machining versatility

Machining time can be reduced without C-axis rotation

Previous model

24 min. 57 sec.

4 min. 3 sec.  
faster

INTEGREX i-100S

20 min. 54 sec.

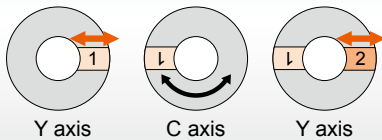
Long Y-axis stroke

- Can feed past spindle center line
- Faster feed rate
- Improved milling performance

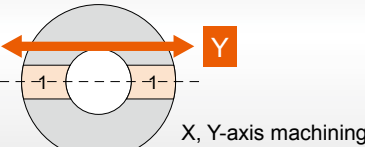


Because machining is performed without C-axis rotation, machining pitch and advancing accuracy can be improved

Previous model



INTEGREX i Series



Because machining can be performed in one step,  
high-accuracy keyway machining can be realized





## Higher Productivity & Higher Accuracy



## Designed for higher speed and higher accuracy

**High-rigidity and high-accuracy C-axis disk brake**  
C-axis positioning:  
min. indexing increment: 0.0001°

**High-rigidity, high-accuracy Y axis**  
Orthogonal design enables a long Y-axis stroke to provide a large machining area.

**B-axis roller gear cam**  
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

**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.

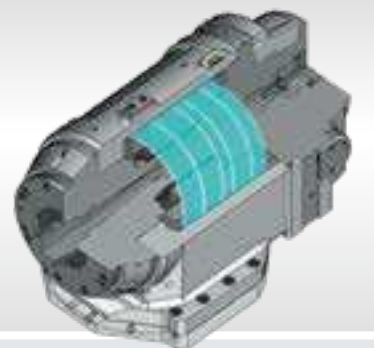


### Integral spindle/motor

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.



### Ballscrew core cooling

(Y-axis and Z-axis ballscrew core cooling is optional)

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

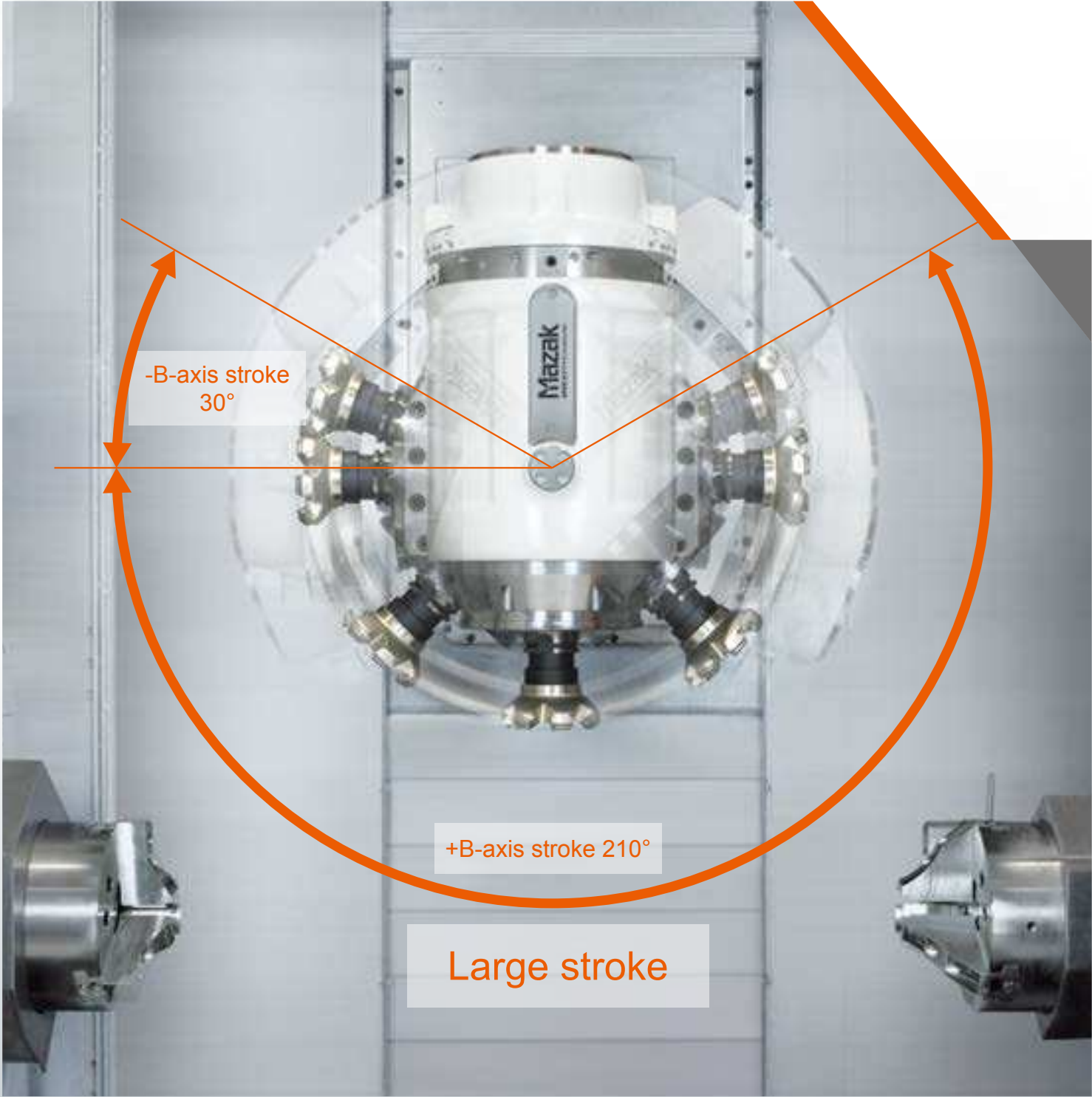




# Higher Productivity

## Large machining area

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



Mazak nameplate is only on 12000 rpm and 20000 rpm (oil & air) 24 kW (32 hp) milling spindle turret.

## Milling spindle specifications meet a wide range of machining requirements

### Milling spindle speed

The 12000 rpm is standard with oil & air lubrication for i-100, i-200, i-300, & i-400 series

- 7.5 kW (10 hp) (40% ED/30-min. rating)
- 24 kW (32 hp) (40% ED/30-min. rating)

i-100 Series  
i-200, 300, 400 Series

20000 rpm high-speed spindle oil & air lubrication

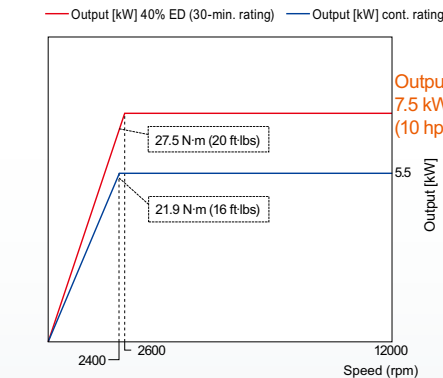
OPTION

- 5.5 kW (7 hp) (10% ED/30-min. rating)
- 15 kW (20 hp) (40% ED/30-min. rating)
- 22 kW (30 hp) (40% ED/30-min. rating)

i-100 Series  
i-200, 300, 400 Series  
i-200, 300, 400 Series

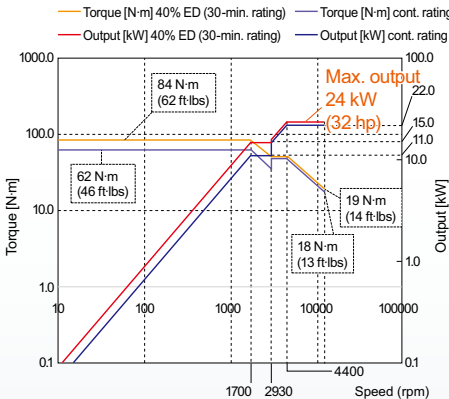
## Spindle output/torque diagrams

12000 rpm milling spindle  
High-output, high-torque 12000 rpm spindle  
INTEGREX i-100 Series



STANDARD

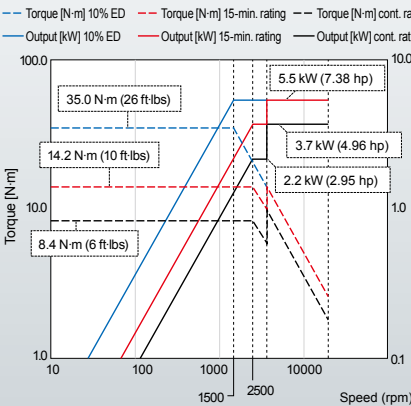
INTEGREX i-200, 300, 400 Series



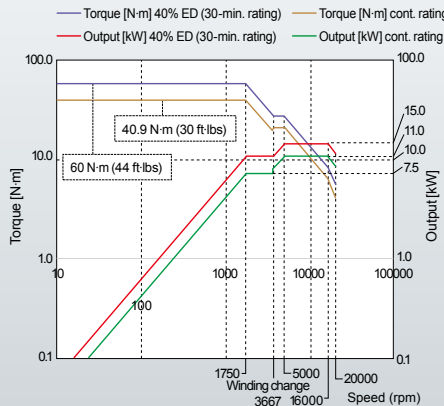
20000 rpm milling spindle  
High spindle speed for small-diameter mills and drills

OPTION

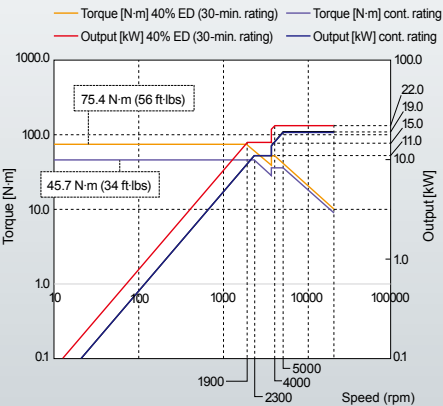
INTEGREX i-100 Series



INTEGREX i-200, 300, 400 Series



INTEGREX i-200, 300, 400 Series





# Higher Productivity

## Main spindle

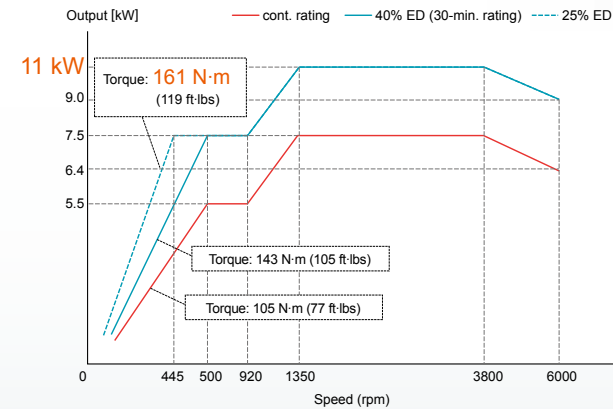
### Powerful turning spindle

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



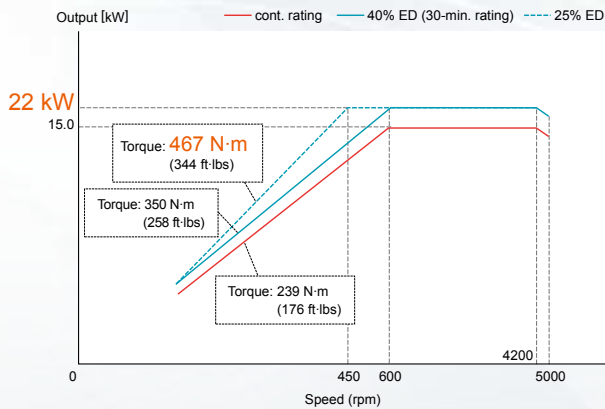
#### INTEGREX i-100, 100S, 100ST

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)



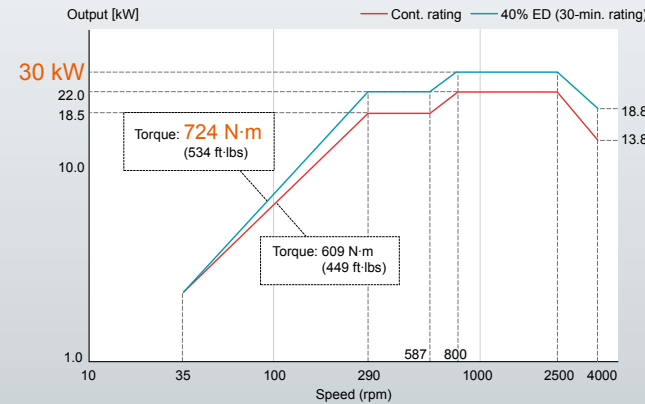
#### INTEGREX i-200, 200S, 200ST

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)



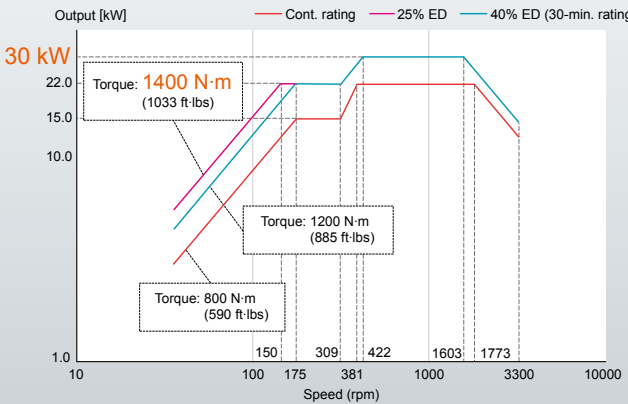
#### INTEGREX i-300, 300S, 300ST

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)

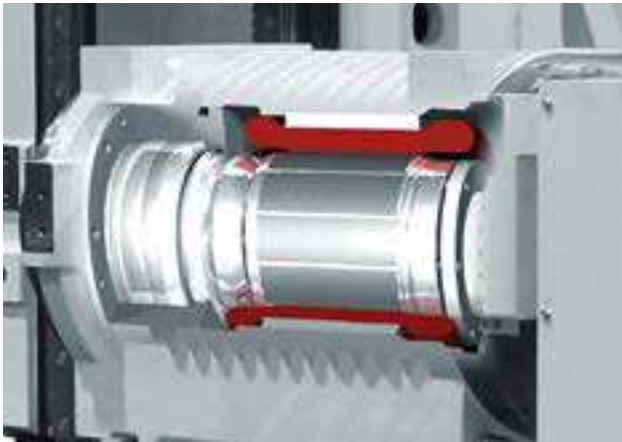


#### INTEGREX i-400, 400S, 400ST

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)



## Second spindle

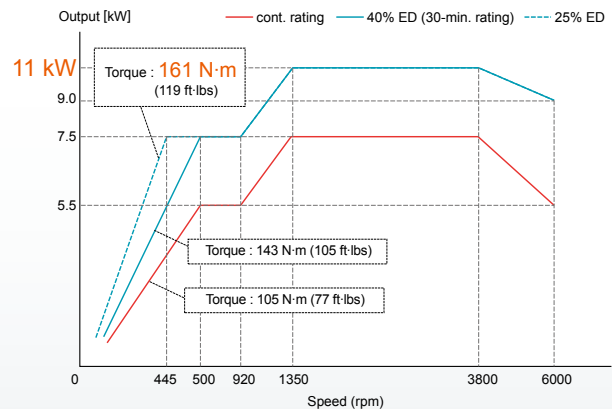


### High-speed integral/spindle motor

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

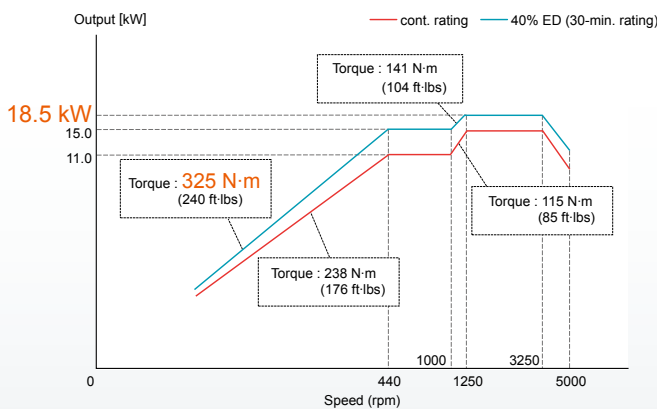
#### INTEGREX i-100S, 100ST

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)



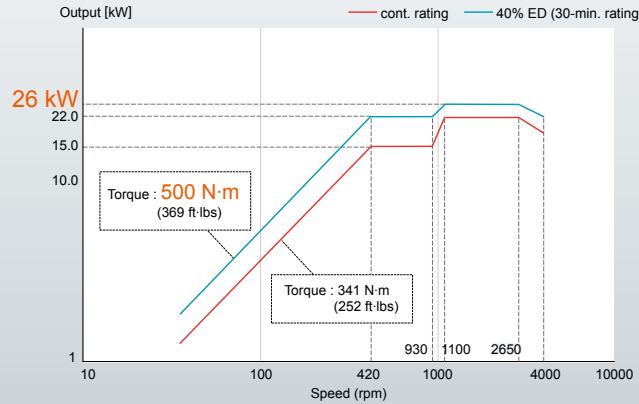
#### INTEGREX i-200S, 200ST

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 another position by menu key or M-code.

|                 |  |
|-----------------|--|
| i-100           | Tailstock center (live center): MT No. 4<br>Max. thrust: 2 kN (203 kgf) (450 lbs)        |
| i-200           | Tailstock center (built-in center): MT No. 5<br>Max. thrust: 7 kN (713 kgf) (1574 lbs)   |
| i-300,<br>i-400 | Tailstock center (built-in center): MT No. 5<br>Max. thrust: 10 kN (1019 kgf) (2248 lbs) |



## Tool magazine

The tool magazine with a storage capacity of 36 tools (optional: 72, 110 or 220 tools) is located at the front of the machine. In addition to the standard HSK-A63 (T63), CAPTO C6, KM63 and KM4X63 tool shank specifications are available as options.



Tool holder shank

HSK-A63 (T63)  
(CAPTO C6, KM63, KM4X63 (option))

\*Tool storage capacities of 110 and 220 for KM4X63 tool holder shanks are available only for the INTEGREX i-200, i-300 and i-400.

## Long drill stocker

OPTION

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

Long drills may be stored in the stocker located on the top of the tailstock/second spindle.

By loading a long drill in the milling spindle and rotating the B axis, deep-hole drilling can be performed.

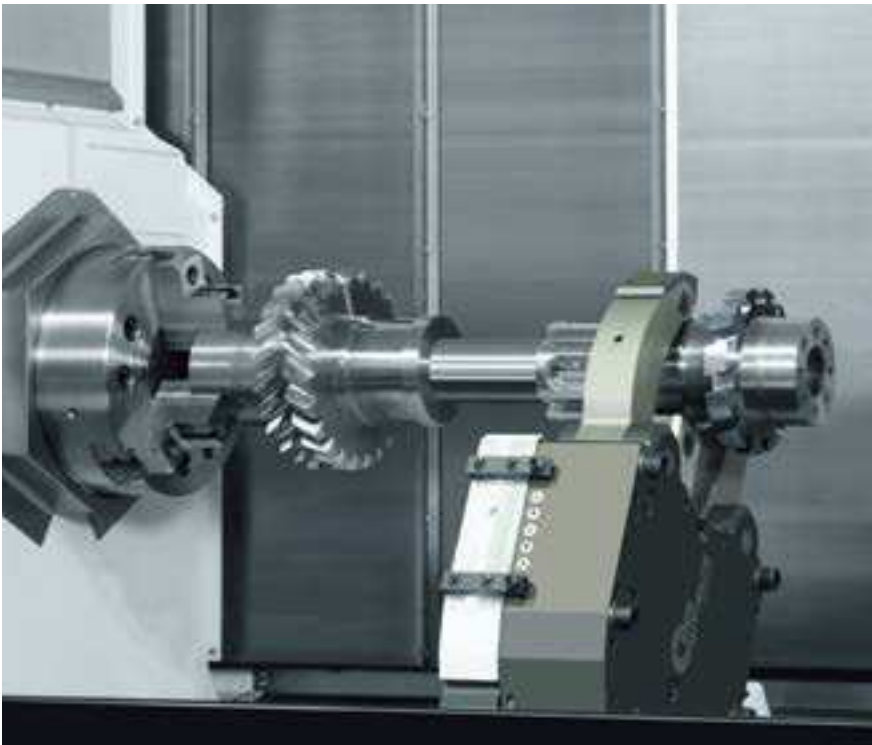
|                    |                      |
|--------------------|----------------------|
| Max. tool diameter | ø80 mm (ø3.15")      |
| Max. tool length   | 1000 mm (39.37")     |
| Tool weight        | 12 kg (26.5 lbs)     |
| Max. torque        | 18 N·m (13.3 ft·lbs) |



## Automatic steady rest

OPTION

A variety of steady rests is available for efficient, high-accuracy machining of long shaft workpieces.



### i-200, 200S (1500U)

| Steady rest manufacturer/model | Gripping diameter                      |
|--------------------------------|--|
| SMW SLU-X2                     | ø8 mm to ø101 mm<br>(ø0.31" to ø3.98") |

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

| Steady rest manufacturer/model | Gripping diameter                        |
|--------------------------------|--|
| SMW SLU-X2                     | ø8 mm to ø101 mm<br>(ø0.31" to ø3.98")   |
| SMW SLU-X3                     | ø12 mm to ø152 mm<br>(ø0.47" to ø5.98")  |
| SMW SLU-X3.1                   | ø20 mm to ø165 mm<br>(ø0.79" to ø6.50")  |
| SMW SLU-X3.2                   | ø50 mm to ø200 mm<br>(ø1.97" to ø7.87")  |
| SMW K4                         | ø52 mm to ø280 mm<br>(ø2.05" to ø11.02") |

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

| Steady rest manufacturer/model | Gripping diameter                        |
|--------------------------------|--|
| SMW SLU-X2                     | ø8 mm to ø101 mm<br>(ø0.31" to ø3.98")   |
| SMW SLU-X3                     | ø12 mm to ø152 mm<br>(ø0.47" to ø5.98")  |
| SMW SLU-X3.1                   | ø20 mm to ø165 mm<br>(ø0.79" to ø6.50")  |
| SMW SLU-X3.2                   | ø50 mm to ø200 mm<br>(ø1.97" to ø7.87")  |
| SMW K4                         | ø52 mm to ø280 mm<br>(ø2.05" to ø11.02") |
| SMW K4.1                       | ø90 mm to ø330 mm<br>(ø3.54" to ø12.99") |





# Higher Productivity

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

The lower turret makes it possible for two tools to cut simultaneously for higher productivity.



A tool mounted on the lower turret can be used for machining on both the main and second spindles thanks to the unique turret design, which reduces the required number of tools. In addition, the INTEGREX IV Series and the INTEGREX i Series can use the same tools.

Lower turret standard specifications

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

9-position drum turret for expanded machining

|                 |   |
|-----------------|---|
| Turret type     | 9-position drum turret  |
| Number of tools | 9 tools   |
| Tool size       | i-100ST<br>Turning tool: □20 mm (0.75"), Boring bar: ø32 mm (ø1.25")<br>i-200ST, 300ST, 400ST<br>Turning tool: □25 mm (1"), Boring bar: ø32 mm (ø1.25") |
| Turret indexing | 0.14 sec./1 step  |

Lower turret with rotary tools

OPTION

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

The lower turret is also 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 (5 hp)                            |
| Max. torque                | 18 N·m (13.3 ft·lbs)                        |
| Tool size                  | Drill ø14 mm (ø0.55")<br>Tap M12 (7/16 UNC) |

Increased productivity by machining with milling spindle and lower turret

- Simultaneous machining  
The milling spindle and lower turret can perform simultaneous machining. This is effective for unmanned operation when either a gantry loader or gantry robot is used.
- Balance cut  
Achieve reduced machining time, high-accuracy machining and improved surface finish when machining small-diameter shaft workpieces by balance cutting with the milling spindle and lower turret.



Conversational programming with the milling spindle and lower turret

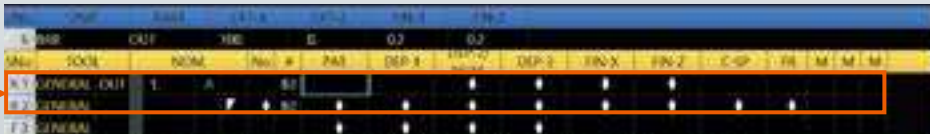
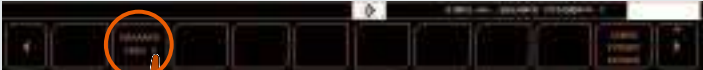
Both upper and lower turrets are easily operated by conversational programs. To use the lower turret, input the lower turret mark (▼) for the respective tool in the program.

Programming example for simultaneous machining



Select which turret is to be used for machining.


Programming example for balance cutting





# Higher Accuracy






OPTION    INTEGREX i-200, i-300, i-400 Series


Using AI, milling spindle vibration is detected and machining conditions are automatically changed to realize unsurpassed surface finishes and high productivity.

Previous method




Skilled operators use their expertise to change machining conditions manually.

Smooth AI Spindle



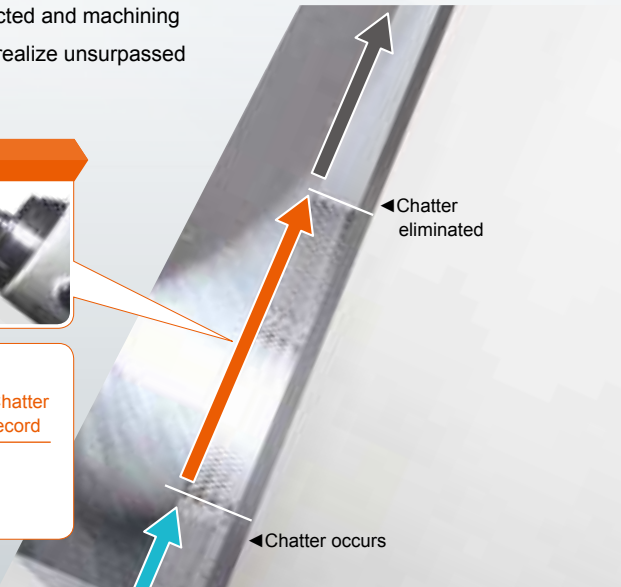
Automatic compensation by AI



Vibration data and machining conditions

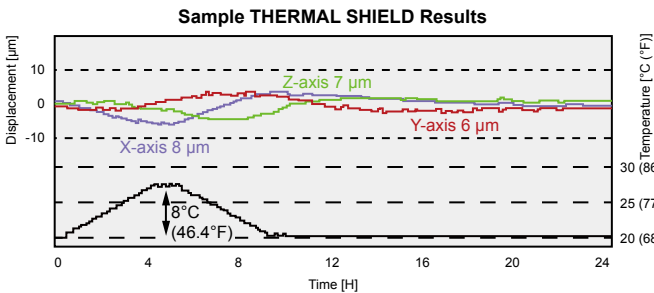
Settings for adaptive control

Chatter record

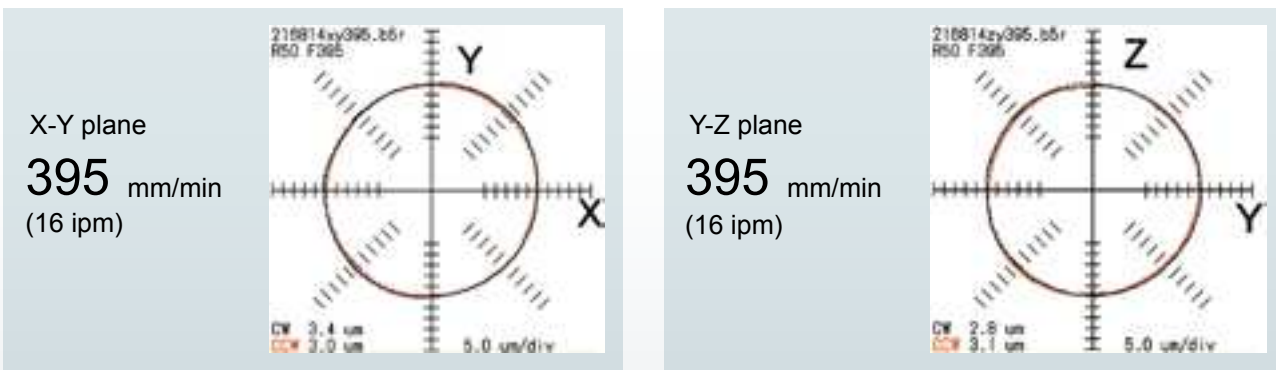


## Heat displacement control – THERMAL SHIELD

The THERMAL SHIELD enables automatic compensation for room temperature changes to realize enhanced continuous machining accuracy. Mazak has performed extensive testing in a temperature-controlled environment and has used the results to develop a control system that automatically compensates for temperature changes in the machining area. Changes in room temperature and compensation data are shown visually.



## DBB (circular interpolation accuracy) INTEGREX i-200 example results



## Positioning accuracy: two times better than the ISO standard

### Mazak Precision Standard

#### • Positioning accuracy

|        |                    |
|--------|--------------------|
| X axis | 11 µm (0.00043")   |
| Y axis | 11 µm (0.00043")   |
| Z axis | 12.5 µm (0.00049") |
| C axis | 11"                |

#### • Positioning repeatability

|        |                 |
|--------|-----------------|
| X axis | 3 µm (0.00012") |
| Y axis | 3 µm (0.00012") |
| Z axis | 4 µm (0.00016") |
| C axis | 6"              |

Note: The inspection is conducted according to ISO-230 on a recommended foundation with room temperature controlled to 22°C ± 1°C (71.6°F ± 1.8°F) after machine has reached operation temperature.



# Automation

## Gantry loader system OPTION

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



INTEGREX i-300 + GL-400F

## Conveyor OPTION

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



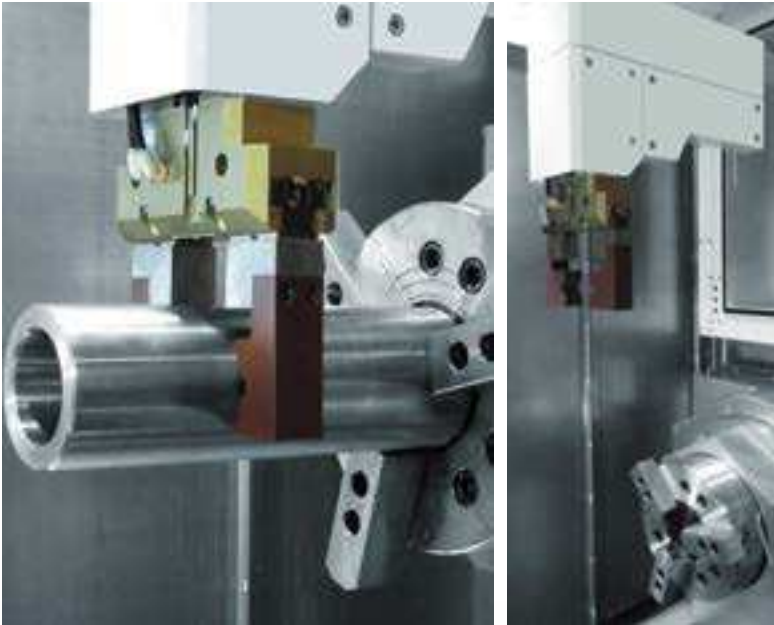
**Rotary conveyor**  
The rotary conveyor can stack relatively small diameter chuck workpieces in multiple levels.



## Work unloader OPTION [i-200S, 200ST, 300S, 300ST, 400S, 400T] (1500U)

The work unloader automatically unloads workpieces that are chucked by the second spindle chuck. Since the workpieces can be transported without opening or closing the front door, cycle time can be reduced.

|   |                                      |
|---|--------------------------------------|
| Workpiece diameter (hand gripping diameter) | ø30 mm to ø102 mm (ø1.18" to ø4.02") |
| Workpiece length                            | 40 mm to 310 mm (1.57" to 12.20")    |
| Max. workpiece weight                       | 10 kg (22 lbs)                       |



## Auto parts catcher OPTION

This system automatically transfers machined workpieces to a parts box outside the machine.





# Ergonomics

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



## 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. The large tool-storage capacity makes it possible to have permanent sets of tooling that can meet the requirements of a wide variety of workpieces for a reduction of tool setup time.

|  |  |
|--|--|
| <p>i-200, 300, 400 Series</p> <p>Max. tool length <b>400 mm (15.75")</b></p> <p>Max. tool diameter</p> <p><b>ø90 mm (ø3.54")</b></p> <p><b>ø125 mm (ø4.92")</b></p> <p>(when adjacent pockets empty)</p> <p>Max. tool weight <b>12 kg (26.5 lbs)</b></p> | <p>i-100 Series</p> <p>Max. tool length <b>250 mm (9.84")</b></p> <p>Max. tool diameter</p> <p><b>ø90 mm (ø3.54")</b></p> <p><b>ø130 mm (ø5.12")</b></p> <p>(when adjacent pockets are empty)</p> <p>Max. tool weight <b>5 kg (11 lbs)</b></p> |
|--|--|



## Designed for ease of operation

The INTEGREX i Series is designed so 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 the operator to monitor workpiece machining easily.



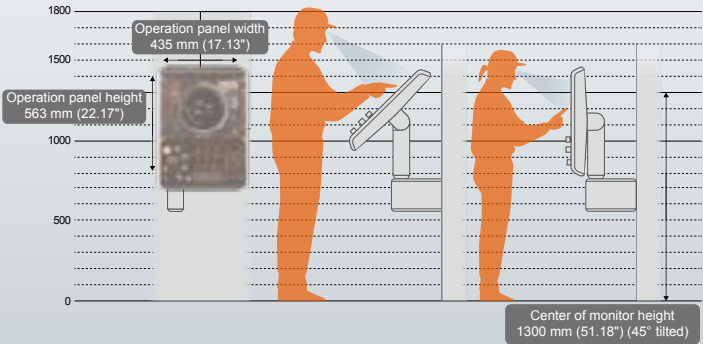
## Wide door opening and convenient access for overhead crane

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.





# CNC System



## Five process home screens

Programming, confirmation, editing and tool data registration



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 they can be used again easily in the future.



Variable Acceleration Control Function

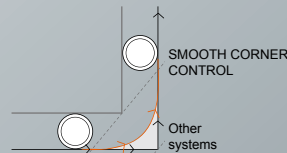
### ● VARIABLE ACCELERATION CONTROL

VARIABLE ACCELERATION CONTROL is a new function that 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.

Seamless Corner Control Function

### ● SMOOTH CORNER CONTROL

Improve finished surfaces and reduce cycle times by optimized acceleration/deceleration when machining corners.



The seventh generation MAZATROL CNC system –  
the core of SMOOTH TECHNOLOGY

MAZATROL **SMOOTHX**

Cycle time reduced by **10 to 20%**

(Test results for reference only)





# Ease of Programming

## MAZATROL conversational program

A MAZATROL interactive program is easily made by inputting answers to questions in conversational language displayed on the touch screen. Even inexperienced operators can make programs quickly thanks to the automatic determination of cutting conditions and automatic generation of the tool path.

### Easy programming of multi-surface and inclined machining

The same home position and coordinate system can be used for angled surfaces and multiple surfaces after entering the angle and coordinate system shift for easy programming of multiple-surface machining.

Angle specification

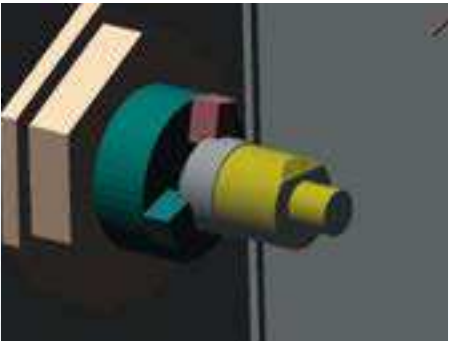
| UNIT   | TURN POS X | TURN POS Y | TURN POS Z | ANGLE B | ANGLE C |
|--------|------------|------------|------------|---------|---------|
| LINE 1 | 0.         | 0.         | 0.         | 45.     | 0.      |

Workpiece home shift amount setting

| SHIFT-X | SHIFT-Y | SHIFT-Z | SHIFT-E | COORD. SH |
|---------|---------|---------|---------|-----------|
| 40.     | 0.      | -10.    | 0.      | 0.        |

Angle shape, machining position setting

| UNIT | SHAPE    | DEPTH | CHG |
|------|----------|-------|-----|
| 7    | DRILLING | 5.    | 15. |
| 8    | DRILLING | 5.    | 15. |
| 9    | DRILLING | 5.    | 15. |
| 10   | DRILLING | 5.    | 15. |
| 11   | DRILLING | 5.    | 15. |
| 12   | DRILLING | 5.    | 15. |
| 13   | DRILLING | 5.    | 15. |
| 14   | DRILLING | 5.    | 15. |
| 15   | DRILLING | 5.    | 15. |
| 16   | DRILLING | 5.    | 15. |
| 17   | DRILLING | 5.    | 15. |
| 18   | DRILLING | 5.    | 15. |
| 19   | DRILLING | 5.    | 15. |
| 20   | DRILLING | 5.    | 15. |
| 21   | DRILLING | 5.    | 15. |
| 22   | DRILLING | 5.    | 15. |
| 23   | DRILLING | 5.    | 15. |
| 24   | DRILLING | 5.    | 15. |
| 25   | DRILLING | 5.    | 15. |
| 26   | DRILLING | 5.    | 15. |
| 27   | DRILLING | 5.    | 15. |
| 28   | DRILLING | 5.    | 15. |
| 29   | DRILLING | 5.    | 15. |
| 30   | DRILLING | 5.    | 15. |
| 31   | DRILLING | 5.    | 15. |
| 32   | DRILLING | 5.    | 15. |
| 33   | DRILLING | 5.    | 15. |
| 34   | DRILLING | 5.    | 15. |
| 35   | DRILLING | 5.    | 15. |
| 36   | DRILLING | 5.    | 15. |
| 37   | DRILLING | 5.    | 15. |
| 38   | DRILLING | 5.    | 15. |
| 39   | DRILLING | 5.    | 15. |
| 40   | DRILLING | 5.    | 15. |
| 41   | DRILLING | 5.    | 15. |
| 42   | DRILLING | 5.    | 15. |
| 43   | DRILLING | 5.    | 15. |
| 44   | DRILLING | 5.    | 15. |
| 45   | DRILLING | 5.    | 15. |
| 46   | DRILLING | 5.    | 15. |
| 47   | DRILLING | 5.    | 15. |
| 48   | DRILLING | 5.    | 15. |
| 49   | DRILLING | 5.    | 15. |
| 50   | DRILLING | 5.    | 15. |
| 51   | DRILLING | 5.    | 15. |
| 52   | DRILLING | 5.    | 15. |
| 53   | DRILLING | 5.    | 15. |
| 54   | DRILLING | 5.    | 15. |
| 55   | DRILLING | 5.    | 15. |
| 56   | DRILLING | 5.    | 15. |
| 57   | DRILLING | 5.    | 15. |
| 58   | DRILLING | 5.    | 15. |
| 59   | DRILLING | 5.    | 15. |
| 60   | DRILLING | 5.    | 15. |
| 61   | DRILLING | 5.    | 15. |
| 62   | DRILLING | 5.    | 15. |
| 63   | DRILLING | 5.    | 15. |
| 64   | DRILLING | 5.    | 15. |
| 65   | DRILLING | 5.    | 15. |
| 66   | DRILLING | 5.    | 15. |
| 67   | DRILLING | 5.    | 15. |
| 68   | DRILLING | 5.    | 15. |
| 69   | DRILLING | 5.    | 15. |
| 70   | DRILLING | 5.    | 15. |
| 71   | DRILLING | 5.    | 15. |
| 72   | DRILLING | 5.    | 15. |
| 73   | DRILLING | 5.    | 15. |
| 74   | DRILLING | 5.    | 15. |
| 75   | DRILLING | 5.    | 15. |
| 76   | DRILLING | 5.    | 15. |
| 77   | DRILLING | 5.    | 15. |
| 78   | DRILLING | 5.    | 15. |
| 79   | DRILLING | 5.    | 15. |
| 80   | DRILLING | 5.    | 15. |
| 81   | DRILLING | 5.    | 15. |
| 82   | DRILLING | 5.    | 15. |
| 83   | DRILLING | 5.    | 15. |
| 84   | DRILLING | 5.    | 15. |
| 85   | DRILLING | 5.    | 15. |
| 86   | DRILLING | 5.    | 15. |
| 87   | DRILLING | 5.    | 15. |
| 88   | DRILLING | 5.    | 15. |
| 89   | DRILLING | 5.    | 15. |
| 90   | DRILLING | 5.    | 15. |
| 91   | DRILLING | 5.    | 15. |
| 92   | DRILLING | 5.    | 15. |
| 93   | DRILLING | 5.    | 15. |
| 94   | DRILLING | 5.    | 15. |
| 95   | DRILLING | 5.    | 15. |
| 96   | DRILLING | 5.    | 15. |
| 97   | DRILLING | 5.    | 15. |
| 98   | DRILLING | 5.    | 15. |
| 99   | DRILLING | 5.    | 15. |
| 100  | DRILLING | 5.    | 15. |



## QUICK MAZATROL

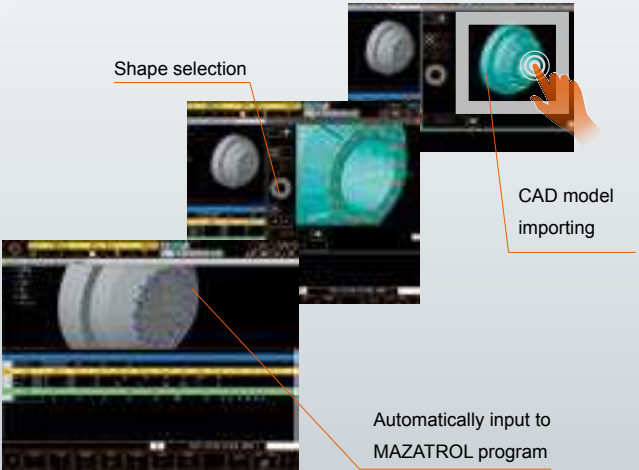
MAZATROL programs, unit lists, and 3D workpiece shapes are linked together. After defining a machining unit in a MAZATROL program, the 3D shape is displayed immediately to check easily and quickly for any programming error. Touch a feature in the 3D model to move quickly to the corresponding section in the MAZATROL program.



3D model is displayed with updated programming in real time

## 3D ASSIST

Import workpiece and coordinate data from 3D CAD data (Parasolid file) to a MAZATROL program. No coordinate value inputs are required. This can reduce input errors and time for program checking.



## Convenient 5-axis programming

The SMOOTH CAM RS system can produce conversational MAZATROL programs and simulate EIA/ISO programs on a PC.

### SMOOTH CAM RS OPTION

#### High-accuracy simulation of EIA/ISO programs

- Tool path check (VIEW SURF)
- Interference check, time study (virtual machining)



Program is sent via a network



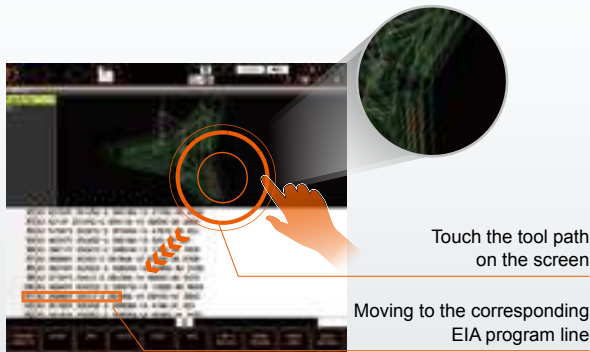
- File Manager
  - Programs created by the SMOOTH CAM RS sent to the machine.

\* QUICK EIA, VIEW SURF, and virtual machining can be used on MAZATROL Smooth CNC systems as well as the SMOOTH CAM RS.

## QUICK EIA

### [EIA program Visualization]

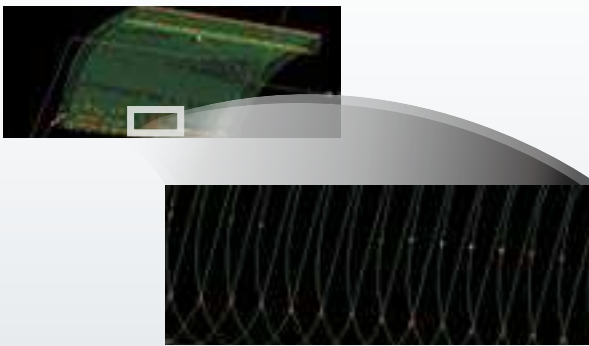
Touch the tool path on the screen to move to the corresponding EIA program and check the program details.



## VIEW SURF

### [EIA program Analysis]

By analyzing the tool path, the locations that are likely to have an effect on the finished surface are displayed. The program can be corrected before machining, and the time required for test machining and program correction can be shortened.



## 3D machine model (IGES, Parasolid, STL, STEP)

A 3D machine model is available to perform program interference checks with other CAD/CAM simulation software.





# Applications

## DONE IN ONE processing with the INTEGREX i Series

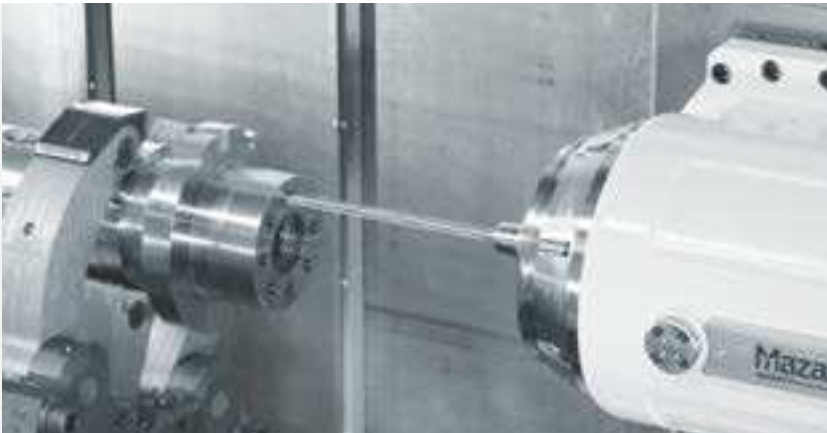
The INTEGREX i Series Multi-Tasking machines are designed to perform a wide variety of machining operations in a single workpiece setup. This provides significant benefits, including reduced machine setups, reduced workpiece handling, faster in-process time, smaller in-process inventory and increased workpiece accuracy. The advanced INTEGREX i Series features enhanced versatility to better meet your production requirements.



## Advanced machining capabilities of the INTEGREX i Series

### Long-drill deep-hole machining

Long drills can be used to drill deep holes thanks to the large Z-axis stroke.



### Shaping

By controlling the radial position of the milling spindle while feeding other axes, workpiece features such as the seat for an O-ring can be machined. A better finished surface can be obtained when compared to that produced by an end mill.



### Multi-tool machining

Since multiple tools are mounted on a single holder, multiple machining processes can be performed continuously. This enables a reduction of tool changing time and more effective utilization of the available tool storage.



### B-axis turning

Surfaces can be turned while changing the angle of the B axis. Changing the contact point between the workpiece and the tool insert provides longer tool life.



### SMOOTH Gear Hobbing

By synchronizing the rotation of the workpiece and the cutting tool, gear hobbing can be performed for both rough and finish machining. An interactive gear data entry process produces a complete machining program. To ensure longer tool life and safe operation, hob shift and tool withdrawal functions are included.



### SMOOTH Gear Milling

Through an interactive data entry process, gear machining programs can be easily created without expensive CAD/CAM software. Since gear machining can be performed by using standard end mills, a gear hob is not required. This results in a significant reduction in production lead time and production cost of gears manufactured in small lots.





Environmentally Friendly

Designed with environmental considerations

The environment and our impact on natural surroundings have always been important concerns for Mazak. 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.

Extended coolant service life

Reduced lubricant consumption

Reduced electrical power consumption



Machine lights and CNC backlight turn-off function

When the machine is not operated for a pre-registered period of time, the machine worklights and CNC backlight are turned off automatically. They automatically turn on when the motion sensor detects the operator's return.

Chip conveyor stop OPTION

After a pre-registered period of time passes following the end of automatic machine operation, the optional chip conveyor automatically stops to reduce electrical power consumption. (Chip conveyor is optional equipment.)

SMOOTH Energy Dashboard OPTION

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

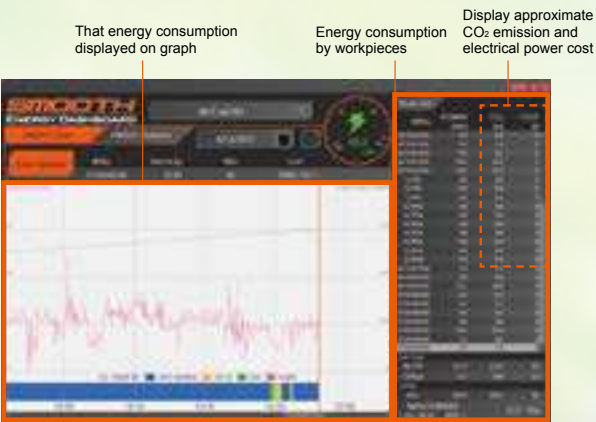
Process screen display

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



Grease lubrication

The linear roller guides and ballscrews are lubricated by grease that eliminates tramp oil in the coolant, resulting in much longer coolant service life.



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 <sup>*1</sup>                          | 519 mm (20.43")  | 854 mm (33.62")              |                      |
|                                      | Max. bar work capacity <sup>*1</sup>                         | 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 indexing range  | -30° to 210°   |                              |                      |
|                                      | Main spindle   | Chuck size   | 6"                           |                      |
| Main spindle speed <sup>*1</sup>     |  | 6000 rpm   |                              |                      |
| Main spindle nose                    |  | A2-5   |                              |                      |
| Main spindle bore                    |  | ø61 mm (ø2.4")   |                              |                      |
| Bearing ID                           |  | ø90 mm (ø3.54")  |                              |                      |
| Min. indexing increment              |  | 0.0001°  |                              |                      |
| Second spindle                       | Chuck size   | -  | 6"                           |                      |
|                                      | Second spindle speed <sup>*1</sup>                           | -  | 6000 rpm                     |                      |
|                                      | Second spindle travel (W axis)                               | -  | 903 mm (35.55")              |                      |
|                                      | Main spindle nose  | -  | A 2-5                        |                      |
|                                      | Main spindle bore  | -  | ø61 mm (ø2.4")               |                      |
|                                      | Bearing ID   | -  | ø90 mm (ø3.54")              |                      |
|                                      | B-axis minimum indexing increment                            | -  | 0.001°                       |                      |
|                                      | Milling spindle  | Milling spindle type   | Spindle turret with ATC      |                      |
| Milling spindle speed                |  | 12000 rpm  |                              |                      |
| Max. milling spindle torque          |  | 49.4 N·m (36.4 ft·lbs)   |                              |                      |
| Turning tool shank height            |  | 20 mm (0.75")  |                              |                      |
| Boring bar shank diameter            |  | ø32 mm (ø1.25")  |                              |                      |
| Min. main spindle indexing increment |  | 0.0001°  |                              |                      |
| Lower turret                         | Turret type  | -  | 9 position drum turret       |                      |
|                                      | Number of tools  | -  | 9                            |                      |
|                                      | Turning tool shank height                                    | -  | 20 mm (0.75")                |                      |
|                                      | Boring bar shank diameter                                    | -  | ø32 mm (ø1.25")              |                      |
|                                      | Turret indexing time   | -  | 0.14 sec/1 step              |                      |
| 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 holder shank <sup>*2</sup>                              | HSK-A63 (T63), [CAPTO C6, KM63 (option)]                                       |                              |                      |
|                                      | Tool storage capacity  | 36 tools   |                              |                      |
|                                      | 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  | Shortest path  |                              |                      |
| Tailstock                            | Center   | MT No.4  | -                            |                      |
|                                      | Travel (W axis)  | 807 mm (31.77")  | -                            |                      |
| Motors                               | Spindle motor (40% ED (30-min. rating)/cont. rating)         | 11 kW (15 hp)/7.5 kW (10 hp)   |                              |                      |
|                                      | Second spindle motor (40% ED (30-min. rating)/cont. rating)  | -  | 11 kW (15 hp)/7.5 kW (10 hp) |                      |
|                                      | Milling spindle motor (40% ED (30-min. rating)/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 (73 psi), 535 L (18.89 ft³)/min (ANR)                                  |                              |                      |
| Coolant                              | Tank capacity <sup>*3</sup>                                  | 269 L (71 gal)   |                              |                      |
| Machine size                         | Machine height   | 2500 mm (98.5")  |                              |                      |
|                                      | Width × length   | 3030 mm × 2635 mm (119.29" × 103.74")  |                              |                      |
|                                      | Weight   | 9200 kg (20282 lbs)  | 9600 kg (21164 lbs)          | 10100 kg (22266 lbs) |

<sup>\*1</sup> Depends on chuck specifications <sup>\*2</sup> HSK A-63 DIN is not available. <sup>\*3</sup> 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 <sup>1</sup>                           | 1011 mm (39.8")   | 1519 mm (59.8")                       | 1011 mm (39.8")                               | 1519 mm (59.8")                       | 1519 mm (59.8")                       |
|                               | Max. bar work capacity <sup>1</sup>                          | 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 indexing range  | -30° to 210°  |                                       |   |                                       |                                       |
| Main spindle                  | Chuck size   | 8"  |                                       |   |                                       |                                       |
|                               | Main spindle speed <sup>1</sup>                              | 5000 rpm  |                                       |   |                                       |                                       |
|                               | Main spindle nose  | A2-6  |                                       |   |                                       |                                       |
|                               | Main spindle bore  | ø76 mm (ø3")  |                                       |   |                                       |                                       |
|                               | Bearing ID   | ø120 mm (ø4.72")  |                                       |   |                                       |                                       |
|                               | Min. indexing increment                                      | 0.0001°   |                                       |   |                                       |                                       |
| Second spindle                | Chuck size   | -   |                                       | 8"  |                                       |                                       |
|                               | Second spindle speed <sup>1</sup>                            | -   |                                       | 5000 rpm                                      |                                       |                                       |
|                               | Second spindle travel (W axis)                               | -   |                                       | 1066 mm (41.97")                              | 1574 mm (61.96")                      | 1539 mm (60.59")                      |
|                               | Main spindle nose  | -   |                                       | A2-6  |                                       |                                       |
|                               | Main spindle bore  | -   |                                       | ø76 mm (ø3")                                  |                                       |                                       |
|                               | Bearing ID   | -   |                                       | ø120 mm (ø4.72")                              |                                       |                                       |
|                               | B-axis minimum spindle indexing increment                    | -   |                                       | 0.001°  |                                       |                                       |
| Milling spindle               | Milling spindle type   | Spindle turret with ATC   |                                       |   |                                       |                                       |
|                               | Milling spindle speed  | 12000 rpm   |                                       |   |                                       |                                       |
|                               | Max. milling spindle torque                                  | 120 N·m (88.5 ft·lbs)   |                                       |   |                                       |                                       |
|                               | Turning tool shank height                                    | 25 mm (1")  |                                       |   |                                       |                                       |
|                               | Boring bar shank diameter                                    | ø40 mm (ø1.5")  |                                       |   |                                       |                                       |
|                               | Min. main spindle indexing increment                         | 0.0001°   |                                       |   |                                       |                                       |
| Lower turret                  | Turret type  | -   |                                       |   |                                       | 9 position drum turret                |
|                               | Number of tools  | -   |                                       |   |                                       | 9                                     |
|                               | Turning 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 holder shank*2  | HSK-A63 (T63), [CAPTO C6, KM63, KM4X63 (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  | Shortest path   |                                       |   |                                       |                                       |
| Tailstock                     | Center   | MT No.5   |                                       | -   |                                       |                                       |
|                               | Travel (W-axis)  | 1026 mm (40.39")  | 1562 mm (61.50")                      | -   |                                       |                                       |
| Motors                        | Spindle motor (40% ED (30-min. rating)/cont. rating)         | 22 kW (30 hp)/15 kW (20 hp)   |                                       |   |                                       |                                       |
|                               | Second spindle motor (40% ED (30-min. rating)/cont. rating)  | -   |                                       | 18.5 kW (25 hp)/15 kW (20 hp)                 |                                       |                                       |
|                               | Milling spindle motor (40% ED (30-min. rating)/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 (73 psi), 400 L (14.13 ft³)/min (ANR)                                   |                                       | 0.5 MPa (73 psi), 450 L (15.89 ft³)/min (ANR) |                                       |                                       |
| Tank capacity                 | Coolant*3  | 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 (107.09")   |                                       |   |                                       |                                       |
|                               | Width × length   | 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)                  | 13100 kg (28881 lbs)                          | 15200 kg (33510 lbs)                  | 16600 kg (36596 lbs)                  |

<sup>1</sup> Depends on chuck specifications <sup>2</sup> HSK A-63 DIN is not available. <sup>3</sup> Hinge type (option)

|                               |  | INTEGREX i-300  |                                       |                                       | INTEGREX i-300S                       |                                       | INTEGREX i-300ST                      |
|-------------------------------|--|---|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
|                               |  | 1000U   | 1500U                                 | 2500U                                 | 1500U                                 | 2500U                                 | 1500U                                 |
| Capacity                      | Max. swing/swing over cross slide                            | ø658 mm (Φ25.9")  |                                       |                                       |                                       |                                       |                                       |
|                               | Max. machining diameter (upper turret)                       | ø658 mm (Φ25.9")  |                                       |                                       |                                       |                                       |                                       |
|                               | (lower turret)   | -   |                                       |                                       |                                       |                                       |                                       |
|                               | Max. machining length <sup>1</sup>                           | 1011 mm (39.8")   | 1519 mm (59.8")                       | 2497 mm (98.31")                      | 1519 mm (59.8")                       | 2497 mm (98.31")                      | ø420 mm (ø16.53")                     |
|                               | Max. bar work capacity <sup>1</sup>                          | 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)                                | -   |                                       |                                       |                                       |                                       |                                       |
|                               | Z2-axis travel (lower turret)                                | -   |                                       |                                       |                                       |                                       |                                       |
|                               | B-axis indexing range  | -30° to 210°  |                                       |                                       |                                       |                                       |                                       |
| Main spindle                  | Chuck size   | 10"   |                                       |                                       |                                       |                                       |                                       |
|                               | Main spindle speed <sup>1</sup>                              | 4000 rpm  |                                       |                                       |                                       |                                       |                                       |
|                               | Main spindle nose  | A2-8  |                                       |                                       |                                       |                                       |                                       |
|                               | Main spindle bore  | ø91 mm (ø3.58")   |                                       |                                       |                                       |                                       |                                       |
|                               | Bearing ID   | ø130 mm (ø5.12")  |                                       |                                       |                                       |                                       |                                       |
|                               | Min. indexing increment                                      | 0.0001°   |                                       |                                       |                                       |                                       |                                       |
| Second spindle                | Chuck size   | -   |                                       |                                       | 10"                                   |                                       |                                       |
|                               | Second spindle speed <sup>1</sup>                            | -   |                                       |                                       | 4000 rpm                              |                                       |                                       |
|                               | Second spindle travel (W-axis)                               | -   |                                       |                                       | 1574 mm (61.97")                      | 2175 mm (85.63")                      | 1539 mm (60.59")                      |
|                               | Main spindle nose  | -   |                                       |                                       | A2-8                                  |                                       |                                       |
|                               | Main spindle bore  | -   |                                       |                                       | ø91 mm (ø3.58")                       |                                       |                                       |
|                               | Bearing ID   | -   |                                       |                                       | ø130 mm (ø5.12")                      |                                       |                                       |
|                               | B-axis minimum spindle indexing increment                    | -   |                                       |                                       | 0.001°                                |                                       |                                       |
| Milling spindle               | Milling spindle type   | Spindle turret with ATC   |                                       |                                       |                                       |                                       |                                       |
|                               | Milling spindle speed  | 12000 rpm   |                                       |                                       |                                       |                                       |                                       |
|                               | Max. milling spindle torque                                  | 120 N·m (88.5 ft·lbs)   |                                       |                                       |                                       |                                       |                                       |
|                               | Turning tool shank height                                    | 25 mm (1")  |                                       |                                       |                                       |                                       |                                       |
|                               | Boring bar shank diameter                                    | ø40 mm (ø1.5")  |                                       |                                       |                                       |                                       |                                       |
|                               | Min. main spindle indexing increment                         | 0.0001°   |                                       |                                       |                                       |                                       |                                       |
| Lower turret                  | Turret type  | -   |                                       |                                       |                                       |                                       | 9 position drum turret                |
|                               | Number of tools  | -   |                                       |                                       |                                       |                                       | 9                                     |
|                               | Turning 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 holder shank <sup>2</sup>                               | HSK-A63 (T63), [CAPTO C6, KM63, KM4X63 (option)]                                |                                       |                                       |                                       |                                       |                                       |
|                               | Tool storage capacity  | 36 tools  |                                       |                                       |                                       |                                       |                                       |
|                               | Max. tool diameter/length (from gauge line)                  | ø90 mm (ø3.54") (when adjacent pockets empty: ø125 mm (Φ4.92"))/400 mm (15.75") |                                       |                                       |                                       |                                       |                                       |
|                               | Max. tool weight   | 12 kg (26.46 lbs)   |                                       |                                       |                                       |                                       |                                       |
|                               | Tool selection method  | 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 (40% ED (30-min. rating)/cont. rating)         | 30 kW (40 hp)/22 kW (30 hp)   |                                       |                                       |                                       |                                       |                                       |
|                               | Second spindle motor (40% ED (30-min. rating)/cont. rating)  | -   |                                       |                                       | 26 kW (35 hp)/22 kW (30 hp)           |                                       |                                       |
|                               | Milling spindle motor (40% ED (30-min. rating)/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 (73 PSI), 400 L (14.13 ft³)/min (ANR)                                   |                                       |                                       |                                       |                                       |                                       |
| Tank capacity                 | Coolant <sup>3</sup>   | 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 (107.09")   |                                       | 2770 mm (109.06")                     | 2720 mm (107.09")                     | 2770 mm (109.06")                     | 2720 mm (107.09")                     |
|                               | Width × length   | 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 (39793 lbs)                  | 15500 kg (34172 lbs)                  | 18350 kg (40454 lbs)                  | 16900 kg (37258 lbs)                  |

<sup>1</sup> Depends on chuck specifications <sup>2</sup> HSK A-63 DIN is not available. <sup>3</sup> Hinge type (option)



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 <sup>*1</sup>                          | 1011 mm (39.8")   | 1519 mm (59.8")                       | 2497 mm (98.31")                      | 1519 mm (59.8")  | 2497 mm (98.31")                      | 1519 mm (59.8")                       |                        |
| Max. bar work capacity <sup>*1</sup> |  | 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 indexing range  | -30° to 210°  |                                       |                                       |  |                                       |                                       |                        |
| Main spindle                         | Chuck size   | 12"   |                                       |                                       |  |                                       |                                       |                        |
|                                      | Main spindle speed <sup>*1</sup>                             | 3300 rpm  |                                       |                                       |  |                                       |                                       |                        |
|                                      | Main spindle nose  | A2-8  |                                       |                                       |  |                                       |                                       |                        |
|                                      | Main spindle bore  | ø112 mm (ø4.41")  |                                       |                                       |  |                                       |                                       |                        |
|                                      | Bearing ID   | ø150 mm (ø5.91")  |                                       |                                       |  |                                       |                                       |                        |
|                                      | Min. main spindle indexing increment                         | 0.0001°   |                                       |                                       |  |                                       |                                       |                        |
| Second spindle                       | Chuck size   | -   |                                       |                                       | 10"  |                                       |                                       |                        |
|                                      | Second spindle speed <sup>*1</sup>                           | -   |                                       |                                       | 4000 rpm   |                                       |                                       |                        |
|                                      | Second spindle travel (W axis)                               | -   |                                       |                                       | 1574 mm (61.97")   | 2175 mm (85.63")                      | 1539 mm (60.59")                      |                        |
|                                      | Main spindle nose  | -   |                                       |                                       | A2-8   |                                       |                                       |                        |
|                                      | Main spindle bore  | -   |                                       |                                       | ø91 mm (ø3.58")  |                                       |                                       |                        |
|                                      | Bearing ID   | -   |                                       |                                       | ø130 mm (ø5.12")   |                                       |                                       |                        |
|                                      | Min. indexing increment                                      | -   |                                       |                                       | 0.001°   |                                       |                                       |                        |
| Milling spindle                      | Milling spindle type   | Spindle turret with ATC   |                                       |                                       |  |                                       |                                       |                        |
|                                      | Milling spindle speed  | 12000 rpm   |                                       |                                       |  |                                       |                                       |                        |
|                                      | Max. milling spindle torque                                  | 120 N·m (88.5 ft·lbs)   |                                       |                                       |  |                                       |                                       |                        |
|                                      | Turning 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                      |
|                                      | Turning 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 (1181 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 holder shank <sup>*2</sup>                              | HSK-A63 (T63), [CAPTO C6, KM63, KM4X63 (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                | 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 (40% ED (30-min. rating)/cont. rating)         | 30 kW (40 hp)/22 kW (30 hp)   |                                       |                                       |  |                                       |                                       |                        |
|                                      | Second spindle motor (40% ED (30-min. rating)/cont. rating)  | -   |                                       |                                       | 26 kW (35 hp)/22 kW (30 hp)                                |                                       |                                       |                        |
|                                      | Milling spindle motor (40% ED (30-min. rating)/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 (73 psi), 400 L (14.13 ft <sup>3</sup> )/min (ANR)                      |                                       |                                       | 0.5 MPa (73 psi), 450 L (15.89 ft <sup>3</sup> )/min (ANR) |                                       |                                       |                        |
| Tank capacity                        | Coolant <sup>*3</sup>  | 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 (107.09")   |                                       |                                       | 2770 mm (109.06")  | 2720 mm (107.09")                     | 2770 mm (109.06")                     |                        |
|                                      | Width × length   | 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)                  | 17200 kg (37919 lbs)                  |                        |

<sup>\*1</sup> Depends on chuck specifications <sup>\*2</sup> HSK A-63 DIN is not available. <sup>\*3</sup> Hinge type (option)

MAZATROL SmoothX 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*  |
| 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, Cylindrical interpolation*, Spiral interpolation, Helical interpolation, Involute interpolation*, Fine spline interpolation*, NURBS interpolation*, Polar coordinate interpolation*, Constant lead threading, Variable lead threading, Threading (C-axis interpolation type), 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, G0 slope constant*, VARIABLE ACCELERATION CONTROL                                 | 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, G0 slope constant*, VARIABLE ACCELERATION CONTROL  |
| Program registration               | Number of programs: 256 (Standard)/960 (Max.), Program memory: 2MB, Program memory expansion: 8MB*, Program memory expansion: 32MB*  |   |
| 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                  | -  | Polygonal machining*, Hobbing II*, Shaping function*, Tool center point control*, Tool radius compensation for 5-axis machining*, Tilted working plane, Workpiece positioning error compensation*, 5-axis tool length compensation*, Dynamic compensation II*, Rotary axis prefilter, 5-axis parameter select*  |
| Machine compensation               | Backlash compensation, Pitch error compensation, Volumetric compensation*, Geometric deviation 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, WPC coordinate measurement, Measurement on machine, Tool eye measurement   |
| Automatic measuring functions      | WPC coordinate measurement, measurement, Sensor calibration, Tool eye auto tool measurement, Tool breakage detection, External tool breakage detection   | Automatic tool length measurement, Laser tool length/diameter measurement, Workpiece measurement, Sensor calibration, Tool eye auto tool measurement, Tool breakage detection, External tool breakage detection   |
| MDI measurement                    | Coordinate measurement, Laser measurement  |   |
| Peripheral network                 | PROFIBUS-DP*, EtherNet/IP*, CC-Link*   |   |
| Memory                             | SD card interface, USB   |   |
| EtherNet                           | 10M/100M/1Gbps   |   |

\* Option



# Standard and Optional Equipment

## Machine

**Scale feedback system (X, Y, Z axis)**  
Detects absolute machine position – especially suitable for high-speed operation over extended periods.

**Three-color machine status light**  
Consists of three lights. From top: red for alarm, yellow for machining completion, green for automatic operation



**Hydraulic pressure interlock (standard)**  
Machine operation stops automatically after hydraulic pressure anomalies are detected by pressure switch.

**Double foot pedal chuck switch**  
The double foot pedal switch is used to open/close the chucks separately.



## Factory automation

**Tool eye (standard)**  
The tool eye can be programmed for automatic tool measurement and compensation as well as tool breakage inspection. In addition, because tool setup is done by simply bringing the tool tip into contact with the tool eye, tool setup time is reduced considerably.



**Mazak monitoring system B (RMP60)**  
Coordinate values are automatically shifted according to the results of probing a workpiece by a touch sensor mounted in the machine spindle.

**Automatic power ON/OFF + warm-up operation (standard)**  
Using a timer setting, the power can be automatically turned on and off, as well as perform warm-up operation.

**Tool ID**  
Tool ID enables automatically inputing and updating of tool data into the CNC for networked machines. It eliminates mistakes when loading tools into the magazine and tool data input, reducing setup time (requires retention bolt with tool ID and tool presetter).

## Coolant

**Cover coolant (standard)**  
Coolant discharge prevents chips from accumulating in the machining area.

**Flood coolant (standard)**  
Nozzles on spindle housing discharge coolant to cool workpiece and remove chips.

**Coolant through spindle system (standard)**  
Coolant is fed to the tool tip by passages through the tool holder and tool. Three pump pressure specifications are available: 0.5 MPa (73 psi), 1.5 MPa (220 psi) and 7.0 MPa (1015 psi).



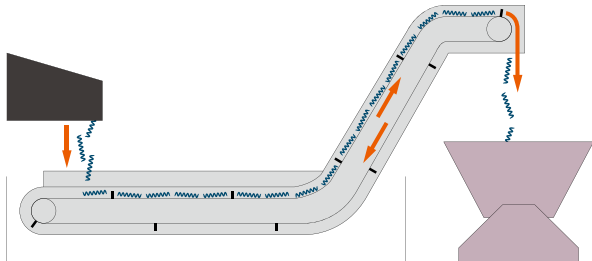
**SUPERFLOW coolant system**  
Featuring an energy-efficient diaphragm pump and high-performance cyclone filter with minimal maintenance requirements, the SUPERFLOW system allows operators to set coolant pressure between 0-7 MPa (0-1015 psi) using M code.

**Coolant temperature control**  
Maintains coolant temperature to match the room temperature to prevent thermal displacement, which can affect machining accuracy.

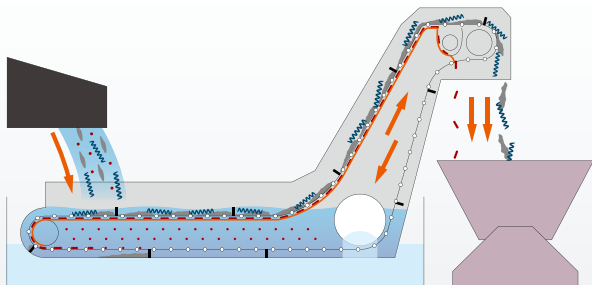
**Mist collector**  
Coolant mist generated by machining is removed from the machining area to maintain a safe and clean working environment.

## Chip disposal

**Chip conveyor (hinge)**  
Chips are removed by hinge-plate belt and discharged from the rear or side of machine. Very suitable for curly steel chips 30 mm ~ 50 mm (1.18" ~ 1.97") long.



**Chip conveyor (ConSep 2000 II WS)**  
Chip conveyor with internal coolant filtration that is effective for removing small chips as well as long, curly chips.



|  | ConSep 2000 II WS | Hinge type          |
|--|-------------------|---------------------|
| Sludge-like chips (0.25 mm to 1 mm) (0.01" to 0.04") | ○                 | ×                   |
| Needle-like chips (0.5 mm) (0.02")                   | ○                 | ×                   |
| 1 mm to 5 mm (0.04" to 0.20")                        | ○                 | ×                   |
| 5 mm to 30 mm (0.20" to 1.18") (max. 30 mm (1.18"))  | ○                 | △ (Not recommended) |
| 30 mm to 70 mm (1.18" to 2.76") (max. 70 mm (2.76")) | ○                 | ○                   |
| 70 mm (2.76") or more                                | ○                 | ○                   |



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/<br>synchronization function                  | -  | ○  | ○ |   |
|  | 9D lower turret  | -  | -  | ● |   |
|  | Main spindle hydraulic chuck (6" through-hole chuck<br>B-206A515) [ø42 mm (ø1.65")]          | ●  | ●  | ● |   |
|  | Main spindle hydraulic chuck (6" through-hole chuck<br>BB-206) [ø51 mm (ø2")]                | ○  | ○  | ○ |   |
|  | Second spindle hydraulic chuck (6" through-hole chuck<br>B-206 + non-through-hole cylinder)  | -  | ●  | ● |   |
|  | Second spindle hydraulic chuck (6" through-hole chuck<br>BB-206 + non-through-hole cylinder) | -  | ○  | ○ |   |
|  | B-axis 0.0001° indexing/contouring (EIA)   | ●  | ●  | ● |   |
|  | Milling spindle 12000 rpm  | ●  | ●  | ● |   |
|  | Milling spindle 12000 rpm (oil & air)  | ○  | ○  | ○ |   |
|  | Milling spindle 20000 rpm (HSK only)   | ○  | ○  | ○ |   |
|  | 36-tool magazine   | ●  | ●  | ● |   |
|  | 72-tool magazine   | ○  | ○  | ○ |   |
|  | NC tailstock   | ●  | -  | - |   |
|  | Programmable tailstock thrust  | ●  | -  | - |   |
|  | Live center NSK/LC4X-7W (4000 rpm)   | ○  | -  | - |   |
|  | Live center NSK/LC-4A (2500 rpm)   | ○  | -  | - |   |
|  | Tailstock MT No. 4 (dead center)   | ●  | -  | - |   |
|  | Work light   | ●  | ●  | ● |   |
|  | High/low chuck pressure (main spindle)   | ○  | ○  | ○ |   |
|  | High/low chuck pressure (second spindle)   | -  | ○  | ○ |   |
|  | Double foot pedal switch   | ○  | ○  | ○ |   |
|  | Three-color machine status light   | ○  | ○  | ○ |   |
|  | One-color machine status light (yellow: operation end)                                       | ○  | ○  | ○ |   |
|  | One-color machine status light (red: alarm)  | ○  | ○  | ○ |   |
|  | High accuracy  | X-axis and Z-axis ballscrew core cooling | ●  | ● | ● |
|  |  | Y-axis ballscrew 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 axis)          |  | ●  | ●  | ● |   |
| X, Y, Z-axis pitch error compensation input        |  | ●  | ●  | ● |   |
| Safety equipment                                   |  | Hydraulic pressure interlock             | ●  | ● | ● |
|  | Operator door interlock  | ●  | ●  | ● |   |
|  | Overload detection system  | ○  | ○  | ○ |   |
| Depends on chuck specifications.                   |  |  |    |   |   |

|  |   |   |   |   |
|--|---|---|---|---|
| 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 ID/data management  | ○ | ○ | ○ |
|  | Gantry loader GL-50F/75F  | ○ | ○ | ○ |
|  | Automatic parts catcher ø51 mm × L100 mm × 2.5 kg<br>(ø2" × L3.9" × 5.5 lbs)  | ○ | ○ | ○ |
| Robot interface                                      | ○   | ○ | ○ |   |
| Bar feeder interface                                 | ○   | ○ | ○ |   |
| Coolant/<br>Chip disposal                            | Cover coolant   | ● | ● | ● |
|  | Flood coolant   | ● | ● | ● |
|  | Simultaneous discharge of 0.5 MPa (70 psi) coolant<br>through spindle and flood coolant (upper turret)                                    | ● | ● | ● |
|  | Simultaneous discharge of 1.5 MPa (220 psi)<br>high-pressure coolant through spindle and flood coolant<br>(upper turret)                  | ○ | ○ | ○ |
|  | Simultaneous discharge of 3.5 MPa (500 psi)<br>high-pressure coolant through spindle and 0.5 MPa<br>(70 psi) flood coolant (upper turret) | ○ | ○ | ○ |
|  | Simultaneous discharge of 7 MPa (1000 psi) magnum<br>coolant and 0.5 MPa (70 psi) flood coolant (upper turret)                            | ○ | ○ | ○ |
|  | Simultaneous discharge of SUPERFLOW V30C-J coolant<br>system and 0.5 MPa (70 psi) flood coolant (upper turret)                            | ○ | ○ | ○ |
|  | Flood coolant for lower turret, 0.1 MPa (15 psi)  | - | - | ● |
|  | Shower coolant (over top of second spindle)   | ○ | ○ | ○ |
|  | 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  | ○ | ○ | ○ |
|  | Manuals (CD)  | ● | ● | ● |
|  | Additional manuals (CD or paper)  | ○ | ○ | ○ |

Depends on chuck specifications.  
 The values within [ ] indicate the bar work capacity of the chuck.

|  |   | i-200 |   |                                      |  |   | i-200 |    |   |
|--|---|-------|---|--------------------------------------|--|---|-------|----|---|
|  |   | S     |   | ST                                   |  |   | S     | ST |   |
| Machine  | Main spindle 5000 rpm   | ●     | ● | ●                                    | Factory automation                                   | Tool eye (upper turret/automatic)   | ●     | ●  | ● |
|  | Second spindle 5000 rpm   | -     | ● | ●                                    |  | Tool eye (lower turret/automatic)   | -     | -  | ● |
|  | Main spindle 0.0001° indexing/C-axis control  | ●     | ● | ●                                    |  | Automatic chuck jaw open/close  | ●     | ●  | ● |
|  | Second spindle 0.001° indexing (without C-axis)                                     | -     | ● | ●                                    |  | Chuck jaw open/close confirmation   | ●     | ●  | ● |
|  | Second spindle 0.0001° indexing/C-axis control/synchronization function             | -     | ○ | ○                                    |  | Automatic opening/closing front door  | ○     | ○  | ○ |
|  | 9D lower turret   | -     | - | ●                                    |  | Automatic power ON/OFF + warm-up system   | ●     | ●  | ● |
|  | Lower turret (rotary tools)   | -     | - | ○                                    |  | Machining finish buzzer   | ○     | ○  | ○ |
|  | Main spindle hydraulic chuck (8" non-through-hole chuck N-08A0615)                  | ○     | - | -                                    |  | Preparation for visual tool ID/data management  | ○     | ○  | ○ |
|  | Main spindle hydraulic chuck (8" through-hole chuck B-208A615) [ø51 mm (ø2")]       | ●     | ● | ●                                    |  | Gantry loader GL-100F/150F  | ○     | ○  | ○ |
|  | Main spindle hydraulic chuck (8" through-hole chuck BB-08) [ø65 mm (ø2.52")]        | ○     | ○ | ○                                    |  | Automatic parts catcher ø65 mm × L120 mm × 2.5 kg (ø2.52" × L4.7" × 5.5 lbs)  | ○     | ○  | ○ |
|  | Main spindle hydraulic chuck (10" through-hole chuck B-210A615) [ø65 mm (ø2.52")]   | ○     | ○ | ○                                    | Robot interface                                      | ○   | ○     | ○  |   |
|  | Main spindle hydraulic chuck (12" through-hole chuck B-212A815X) [ø102 mm (ø4.02")] | ○     | ○ | ○                                    | Bar feeder interface                                 | ○   | ○     | ○  |   |
|  | Second spindle hydraulic chuck (8" through-hole chuck B-208A615)                    | -     | ● | ●                                    | Coolant/Chip disposal                                | Cover coolant   | ●     | ●  | ● |
|  | Main spindle bore ø112 mm (ø4.41") (3300 rpm)                                       | ○     | ○ | ○                                    |  | Flood coolant   | ●     | ●  | ● |
|  | Work stopper inside spindle   | ○     | ○ | ○                                    |  | Simultaneous discharge of 0.5 MPa (70 psi) coolant through spindle and flood coolant (turret)                                       | ●     | ●  | ● |
|  | B-axis 0.0001° indexing/contouring (EIA)  | ●     | ● | ●                                    |  | Simultaneous discharge of 1.5 MPa (220 psi) high-pressure coolant through spindle and flood coolant (upper turret)                  | ○     | ○  | ○ |
|  | Milling spindle 12000 rpm   | ●     | ● | ●                                    |  | Simultaneous discharge of 3.5 MPa (500 psi) high-pressure coolant through spindle and 0.5 MPa (70 psi) flood coolant (upper turret) | ○     | ○  | ○ |
|  | Milling spindle 12000 rpm (oil & air) 24 kW   | ○     | ○ | ○                                    |  | Simultaneous discharge of 7 MPa (1000 psi) magnum coolant and 0.5 MPa (70 psi) flood coolant (upper turret)                         | ○     | ○  | ○ |
|  | Milling spindle 20000 rpm (CAPTO)   | ○     | ○ | ○                                    |  | Simultaneous discharge of SUPERFLOW V30C-J coolant system and 0.5 MPa (70 psi) flood coolant (upper turret)                         | ○     | ○  | ○ |
|  | Milling spindle 20000 rpm (KM4X)  | ○     | ○ | ○                                    |  | Flood coolant for lower turret, 0.1 MPa (15 psi)  | -     | -  | ● |
|  | Milling spindle 20000 rpm (HSK) 24 kW   | ○     | ○ | ○                                    |  | Shower coolant (main spindle)   | ○     | ○  | ○ |
|  | 36-tool magazine  | ●     | ● | ●                                    |  | Oil skimmer   | ○     | ○  | ○ |
|  | 72-tool magazine  | ○     | ○ | ○                                    | Coolant temperature control                          | ○   | ○     | ○  |   |
|  | 110-tool magazine   | ○     | ○ | ○                                    | Mist collector                                       | ○   | ○     | ○  |   |
|  | NC tailstock (built-in MT No. 5)  | ●     | - | -                                    | Coolant & air blast for chuck jaws (main spindle)    | ○   | ○     | ○  |   |
|  | Programmable tailstock thrust   | ●     | - | -                                    | Air blast through spindle                            | ○   | ○     | ○  |   |
|  | Steady rest <sup>1</sup>  | ○     | ○ | -                                    | Air blast for chuck jaws (main spindle)              | ○   | ○     | ○  |   |
|  | Work light  | ●     | ● | ●                                    | Air blast for chuck jaws (second spindle)            | -   | ●     | ●  |   |
|  | High/low chuck pressure (main spindle)  | ○     | ○ | ○                                    | Preparation for chip conveyor (side disposal/hinge)  | ●   | ●     | ●  |   |
|  | High/low chuck pressure (second spindle)  | -     | ○ | ○                                    | Preparation for chip conveyor (side disposal/ConSep) | ○   | ○     | ○  |   |
| Double foot pedal chuck switch                         | ○   | ○     | ○ | Chip conveyor (side disposal/hinge)  | ○  | ○   | ○     |    |   |
| Three-color machine status light                       | ○   | ○     | ○ | Chip conveyor (side disposal/ConSep) | ○  | ○   | ○     |    |   |
| One-color machine status light (yellow: operation end) | ○   | ○     | ○ | Chip bucket (rotating)               | ○  | ○   | ○     |    |   |
| One-color machine status light (red: alarm)            | ○   | ○     | ○ | Chip bucket (fixed)                  | ○  | ○   | ○     |    |   |
| High accuracy  | X-axis ballscrew core cooling   | ●     | ● | ●                                    | Others   | Manual grease applicator  | ○     | ○  | ○ |
|  | Y-axis and Z-axis ballscrew core cooling  | ○     | ○ | ○                                    |  | Manuals (CD)  | ●     | ●  | ● |
|  | Mazak monitoring system B (RMP 60)  | ○     | ○ | ○                                    |  | Additional manuals (CD or paper)  | ○     | ○  | ○ |
|  | 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 axis)   | ●     | ● | ●                                    |  |   |       |    |   |
| X, Y, Z-axis pitch error compensation input            | ●   | ●     | ● |                                      |  |   |       |    |   |
| Safety equipment                                       | Hydraulic pressure interlock  | ●     | ● | ●                                    |  |   |       |    |   |
|  | Operator door interlock   | ●     | ● | ●                                    |  |   |       |    |   |
|  | Overload detection system   | ○     | ○ | ○                                    |  |   |       |    |   |
|  | Tool breakage detection   | ○     | ○ | ○                                    |  |   |       |    |   |

Depends on chuck specifications.  
 The values within [ ] indicate the bar work capacity of the chuck.  
<sup>1</sup> N/A for 1000U



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) [ø77 mm (ø3.03")] |  | ●                            | ●  | ● |
|                         | Main spindle hydraulic chuck (10" through-hole chuck BB210A815) [ø80 mm (ø3.15")]   |  | ○                            | ○  | ○ |
|                         | Main spindle hydraulic chuck (12" through-hole chuck B-212A0815) [ø80 mm (ø3.15")]  |  | ○                            | ○  | ○ |
|                         | Second spindle hydraulic chuck (10" through-hole chuck B-210A0815X)                 |  | -                            | ●  | ● |
|                         | Work stopper inside spindle   |  | ○                            | ○  | ○ |
|                         | B-axis 0.0001° indexing/contouring (EIA)  |  | ●                            | ●  | ● |
|                         | Milling spindle 12000 rpm   |  | ●                            | ●  | ● |
|                         | Milling spindle 12000 rpm (oil & air) 24 kW   |  | ○                            | ○  | ○ |
|                         | Milling spindle 20000 rpm (CAPTO) 15 kW   |  | ○                            | ○  | ○ |
|                         | Milling spindle 20000 rpm (KM4X)  |  | ○                            | ○  | ○ |
|                         | Milling spindle 20000 rpm (HSK) 24 kW   |  | ○                            | ○  | ○ |
|                         | 36-tool magazine  |  | ●                            | ●  | ● |
|                         | 72-tool magazine  |  | ○                            | ○  | ○ |
|                         | 110-tool magazine   |  | ○                            | ○  | ○ |
|                         | Long drill stocker (3) 2500U only   |  | ○                            | ○  | - |
|                         | NC tailstock (built-in MT5)   |  | ●                            | -  | - |
|                         | Programmable tailstock thrust   |  | ●                            | -  | - |
|                         | Steady rest <sup>1</sup>  |  | ○                            | ○  | - |
|                         | Work light  |  | ●                            | ●  | ● |
|                         | High/low chuck pressure (main spindle)  |  | ○                            | ○  | ○ |
|                         | High/low chuck pressure (second spindle)  |  | -                            | ○  | ○ |
|                         | Double foot pedal chuck switch  |  | ○                            | ○  | ○ |
|                         | Three-color machine status light  |  | ○                            | ○  | ○ |
|                         | One-color machine status light (yellow: operation end)                              |  | ○                            | ○  | ○ |
|                         | One-color machine status light (red: alarm)   |  | ○                            | ○  | ○ |
| High accuracy           | X-axis ball screw core cooling  |  | ●                            | ●  | ● |
|                         | Y-axis and Z-axis ballscrew core cooling  |  | ○                            | ○  | ○ |
|                         | Mazak monitoring system B (RMP 60)  |  | ○                            | ○  | ○ |
|                         | Preparation for Mazak monitoring system B (RMP60)                                   |  | ○                            | ○  | ○ |
|                         | Scale feedback (B axis)   |  | ●                            | ●  | ● |
|                         | Scale feedback (X, Y, Z axis)   |  | ○                            | ○  | ○ |
| Safety equipment        | Scale feedback (X2/Z2 axis for lower turret)  |  | -                            | -  | ○ |
|                         | Absolute position detection (linear axis)   |  | ●                            | ●  | ● |
|                         | X, Y, Z-axis pitch error compensation input   |  | ●                            | ●  | ● |
|                         | Hydraulic pressure interlock  |  | ●                            | ●  | ● |
|                         | Operator door interlock   |  | ●                            | ●  | ● |
|                         | Overload detection system   |  | ○                            | ○  | ○ |
| Tool breakage detection |   |  | ○                            | ○  | ○ |

Depends on chuck specifications.  
 The values within [ ] indicate the bar work capacity of the chuck.  
<sup>1</sup> N/A for 1000U

|                                  |   |  | ●: Standard ○: Option -: N/A |    |   |
|----------------------------------|---|--|------------------------------|----|---|
|                                  |   |  | 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 ID/data management  |  | ○                            | ○  | ○ |
|                                  | Gantry loader GL-200F/300F/400F/500F  |  | ○                            | ○  | ○ |
|                                  | 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 0.5 MPa (70 psi) flood coolant (upper turret) |  | ○                            | ○  | ○ |
|                                  | Simultaneous discharge of 7 MPa (1000 psi) magnum coolant and 0.5 MPa (70 psi) flood coolant (upper turret)                         |  | ○                            | ○  | ○ |
|                                  | Simultaneous discharge of SUPERFLOW V30C-J coolant system and 0.5 MPa (70 psi) flood coolant (upper turret)                         |  | ○                            | ○  | ○ |
|                                  | Flood coolant for lower turret, 0.1 MPa (15 psi)  |  | -                            | -  | ● |
|                                  | Shower coolant (main spindle)   |  | ○                            | ○  | ○ |
|                                  | Oil skimmer   |  | ○                            | ○  | ○ |
|                                  | Coolant temperature control   |  | ○                            | ○  | ○ |
|                                  | Mist collector  |  | ○                            | ○  | ○ |
| Others                           | 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)   |  | ○                            | ○  | ○ |
|                                  | Manual grease applicator  |  | ○                            | ○  | ○ |
|                                  | Manuals (CD)  |  | ●                            | ●  | ● |
| Additional manuals (CD or paper) |   |  | ○                            | ○  | ○ |

|                         |  |  | ●: Standard ○: Option -: N/A |    |   |
|-------------------------|--|--|------------------------------|----|---|
|                         |  |  | 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) [ø102 mm (ø4.02")] |  | ●                            | ●  | ● |
|                         | Main spindle hydraulic chuck (15" through-hole chuck B-15A0815) [ø102 mm (ø4.02")]   |  | ○                            | ○  | ○ |
|                         | Second spindle hydraulic chuck (10" through-hole chuck B-210A0815X)                  |  | -                            | ●  | ● |
|                         | Work stopper inside spindle  |  | ○                            | ○  | ○ |
|                         | B-axis 0.0001° indexing/contouring (EIA)   |  | ●                            | ●  | ● |
|                         | Milling spindle 12000 rpm  |  | ●                            | ●  | ● |
|                         | Milling spindle 12000 rpm (oil & air) 24 kW  |  | ○                            | ○  | ○ |
|                         | Milling spindle 20000 rpm (CAPTO) 15 kW  |  | ○                            | ○  | ○ |
|                         | Milling spindle 20000 rpm (KM4X)   |  | ○                            | ○  | ○ |
|                         | Milling spindle 20000 rpm (HSK) 24 kW  |  | ○                            | ○  | ○ |
|                         | 36-tool magazine   |  | ●                            | ●  | ● |
|                         | 72-tool magazine   |  | ○                            | ○  | ○ |
|                         | 110-tool magazine  |  | ○                            | ○  | ○ |
|                         | Long drill stocker (3) 2500U only  |  | ○                            | ○  | - |
|                         | NC tailstock (built-in MT No.5)  |  | ●                            | -  | - |
|                         | Programmable tailstock thrust  |  | ●                            | -  | - |
|                         | Steady rest <sup>1</sup>   |  | ○                            | ○  | - |
|                         | Work light   |  | ●                            | ●  | ● |
|                         | High/low chuck pressure (main spindle)   |  | ○                            | ○  | ○ |
|                         | High/low chuck pressure (second spindle)   |  | -                            | ○  | ○ |
|                         | Double foot pedal chuck switch   |  | ○                            | ○  | ○ |
|                         | Three-color machine status light   |  | ○                            | ○  | ○ |
|                         | One-color machine status light (yellow: operation end)                               |  | ○                            | ○  | ○ |
|                         | One-color machine status light (red: alarm)  |  | ○                            | ○  | ○ |
| High accuracy           | X-axis ballscrew core cooling  |  | ●                            | ●  | ● |
|                         | Y-axis and Z-axis ballscrew core cooling   |  | ○                            | ○  | ○ |
|                         | Mazak monitoring system B (RMP 60)   |  | ○                            | ○  | ○ |
|                         | Preparation for Mazak monitoring system B (RMP60)                                    |  | ○                            | ○  | ○ |
|                         | Scale feedback (B axis)  |  | ●                            | ●  | ● |
|                         | Scale feedback (X, Y, Z axis)  |  | ○                            | ○  | ○ |
| Safety equipment        | Scale feedback (X2/Z2 axis for lower turret)   |  | -                            | -  | ○ |
|                         | Absolute position detection (linear axis)  |  | ●                            | ●  | ● |
|                         | X, Y, Z-axis pitch error compensation input  |  | ●                            | ●  | ● |
|                         | Hydraulic pressure interlock   |  | ●                            | ●  | ● |
|                         | Operator door interlock  |  | ●                            | ●  | ● |
|                         | Overload detection system  |  | ○                            | ○  | ○ |
| Tool breakage detection |  |  | ○                            | ○  | ○ |

Depends on chuck specifications.  
 The values within [ ] indicate the bar work capacity of the chuck.  
<sup>1</sup> N/A for 1000U

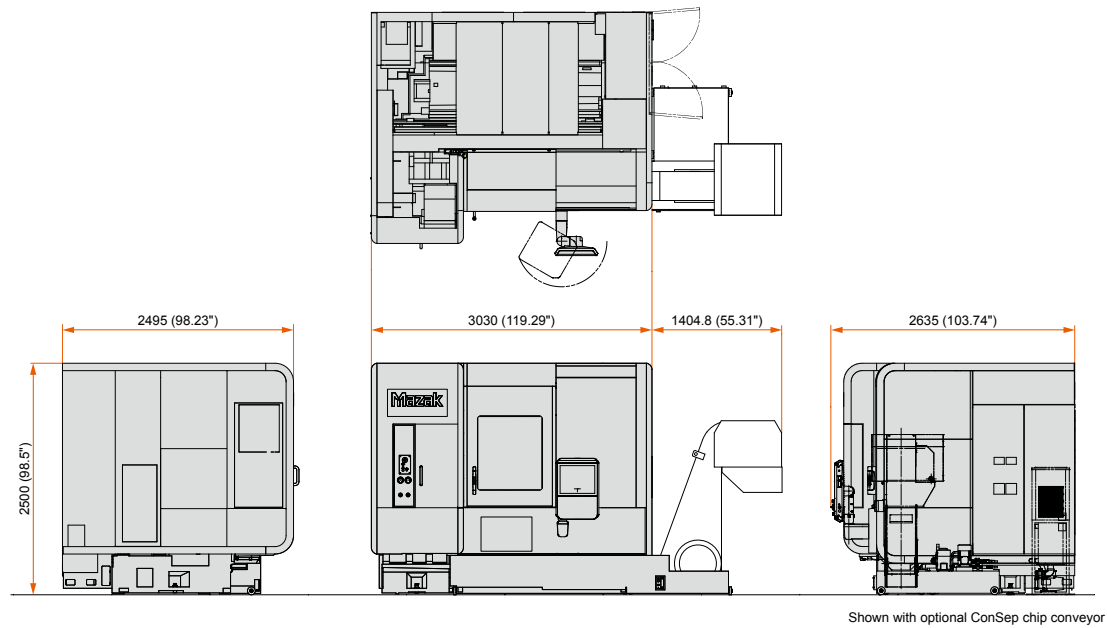
|                                  |   |  | ●: Standard ○: Option -: N/A |    |   |
|----------------------------------|---|--|------------------------------|----|---|
|                                  |   |  | i-400                        |    |   |
|                                  |   |  | S                            | 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 ID/data management  |  | ○                            | ○  | ○ |
|                                  | Gantry loader GL-200F/300F/400F/500F  |  | ○                            | ○  | ○ |
|                                  | 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 0.5 MPa (70 psi) flood coolant (upper turret) |  | ○                            | ○  | ○ |
|                                  | Simultaneous discharge of 7 MPa (1000 psi) magnum coolant and 0.5 MPa (70 psi) flood coolant (upper turret)                         |  | ○                            | ○  | ○ |
|                                  | Simultaneous discharge of SUPERFLOW V30C-J coolant system and 0.5 MPa (70 psi) flood coolant (upper turret)                         |  | ○                            | ○  | ○ |
|                                  | Flood coolant for lower turret, 0.1 MPa (15 psi)  |  | -                            | -  | ● |
|                                  | Shower coolant (main spindle)   |  | ○                            | ○  | ○ |
|                                  | Oil skimmer   |  | ○                            | ○  | ○ |
|                                  | Coolant temperature control   |  | ○                            | ○  | ○ |
|                                  | Mist collector  |  | ○                            | ○  | ○ |
| Others                           | 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)   |  | ○                            | ○  | ○ |
|                                  | Manual grease applicator  |  | ○                            | ○  | ○ |
|                                  | Manuals (CD)  |  | ●                            | ●  | ● |
| Additional manuals (CD or paper) |   |  | ○                            | ○  | ○ |



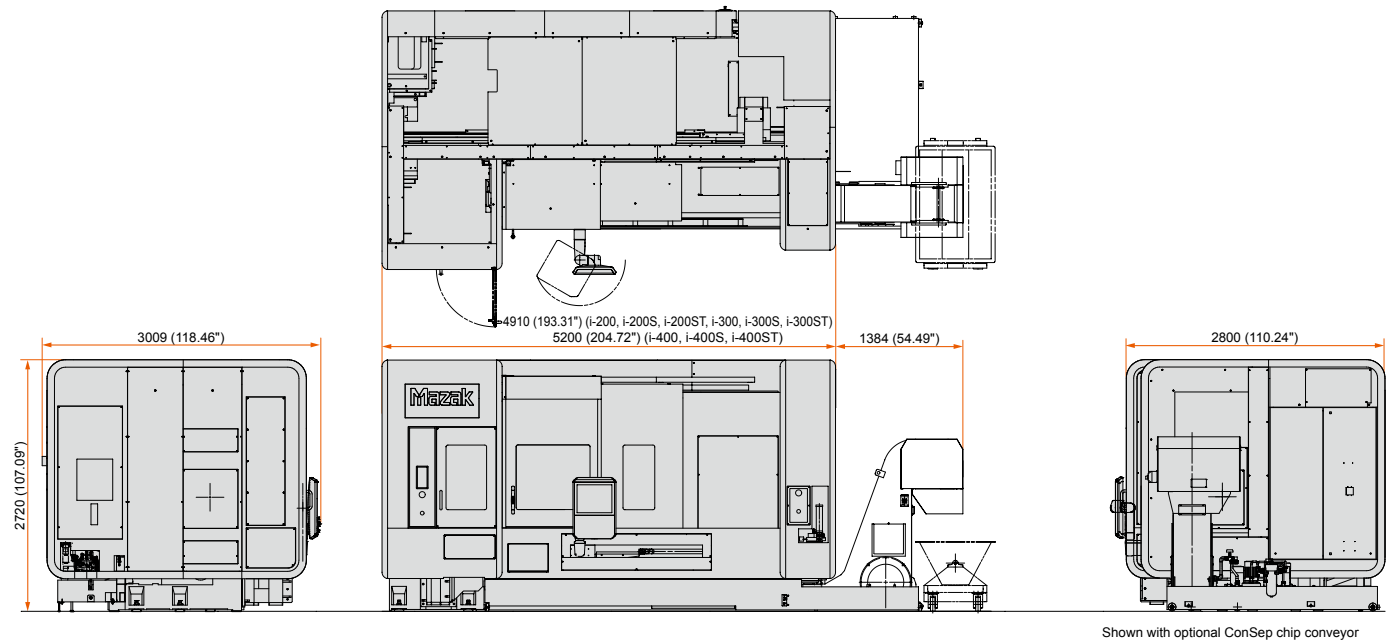
Machine Dimensions

Unit: mm (inch)

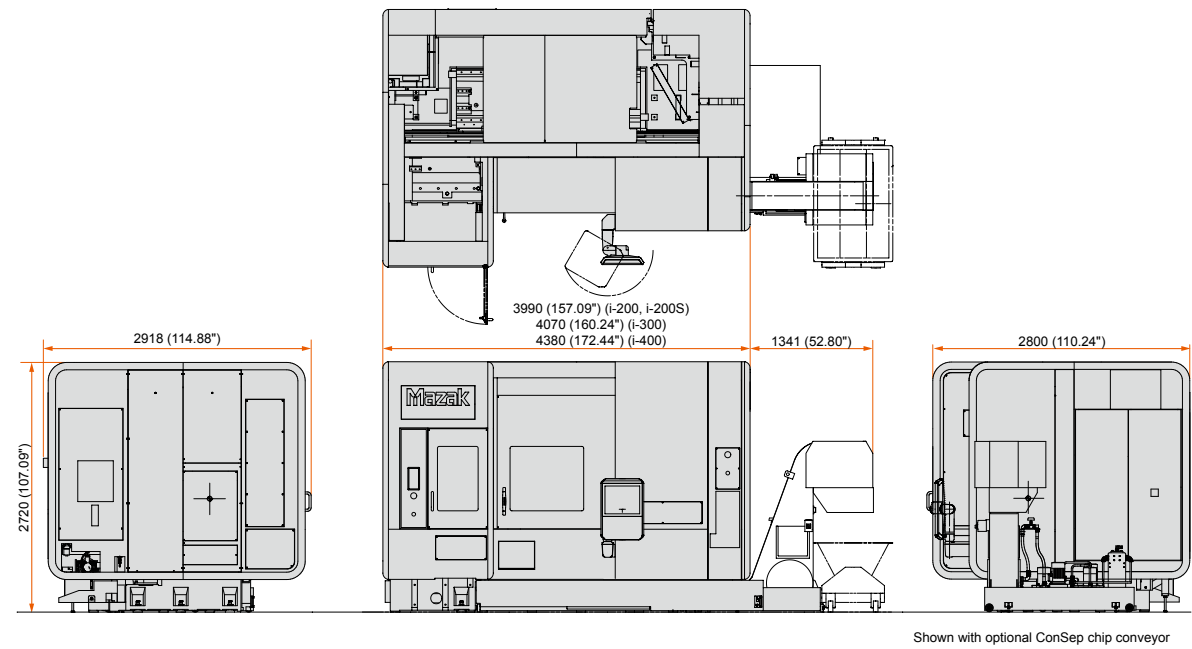
i-100, 100S, 100ST



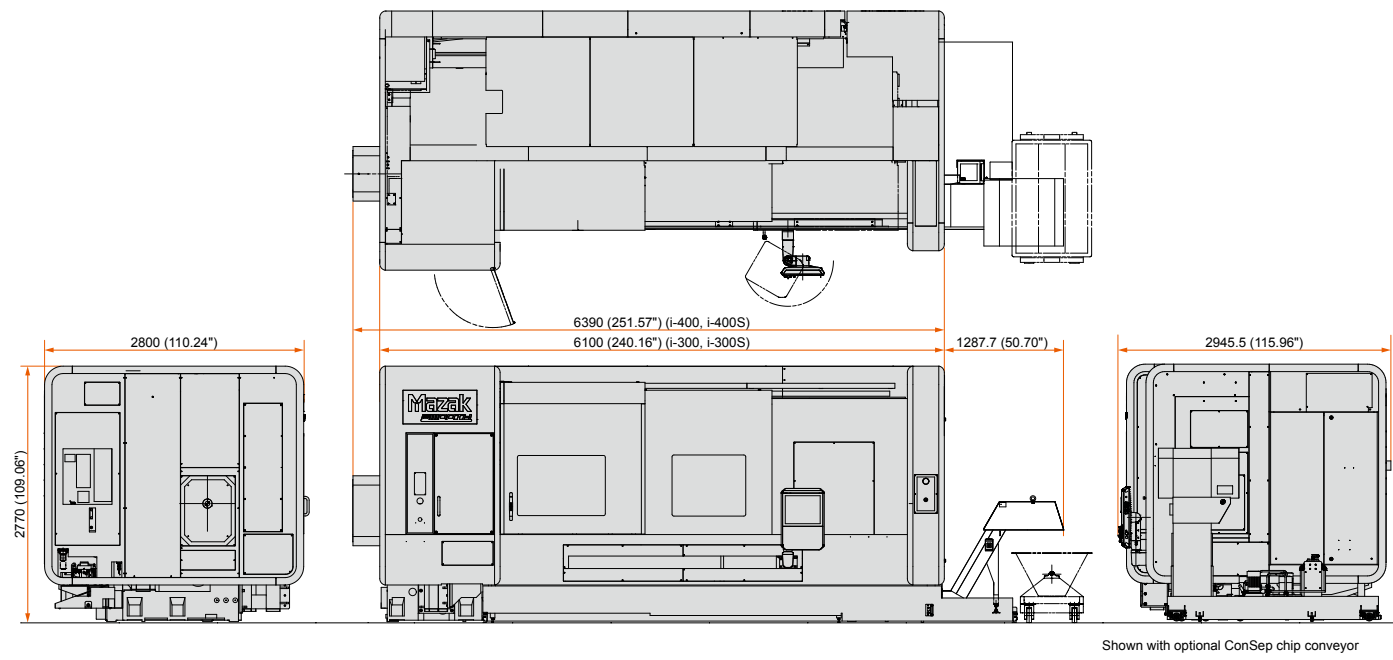
i-200, 200S, 200ST, 300, 300S, 300ST, 400, 400S, 400ST (1500U)



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



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





# Increased Multi-Tasking versatility through INTEGREX evolution

INTEGREX i  
LINEAGE

1983

SLANT TURN  
40N ATC



Equipped with MAZATROL  
CAM T-3 CNC

1988

INTEGREX  
40 ATC



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

1997

INTEGREX  
200Y



Spindle turret  
B-axis function added  
Inclined drilling enabled  
Equipped with MAZATROL  
FUSION640MT CNC (since 1998)

2000

INTEGREX  
200-IISY



Milling spindle 10000 rpm  
C-axis contouring enabled

2002

INTEGREX  
200-III



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

2005

INTEGREX  
200-IV



Equipped with MAZATROL  
Matrix CNC

2010

INTEGREX  
i-200



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

2014

INTEGREX  
i-200



Equipped with MAZATROL  
SmoothX CNC

INTEGREX – the Multi-Tasking machine tool most widely used by manufacturers throughout the world



# INTEGREX i SERIES





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