



i3 2500

10" Chucker Multitasking Machine with Turn and Mill



10" CHUCKER MULTITASKING MACHINE WITH TURN AND MILL

Integrated Multitasking Machine

i3 2500 provides multi-cutting function for single machine to machining raw materials which have complicated shape with single chucking and single operation only.

1 Multi Turning with Mini Turret 2 Face Cutting with Milling Spindle 3 Automatic Tool Change with Magazine— Max. 40 tools
4 Lower Turret with BMT 65 5 Secondary Spindles for Integrated Process



COMPLETE MACHINING WITH TURN AND MILL

i3 2500 makes possible to response market needs for productivity, integration, delivery and cost. Structure of independent orthogonal 3-Axis and extension of over stroke could make multi-direction machining. Also, the spindle made by Hwacheon's own technology would provide rigidity and precision to deliver perfect machining result even during prolonged operation. i3 2500 is designed using thermally symmetric construction considered thermal displacement and FEM analysis to achieve structural rigidity which can translate to quality product results; while the Hwacheon designed machining software components enhance safety and work efficiency in your factory. The machine is configurable with many different options so that they can integrate perfectly to your work environment and application.



Symmetrical designed structure for extra high stability

The symmetrical designed structure is the ideal design for distributing vibration, the upper weight and the heat evenly throughout the entire frame. This characteristic helps the machine to maintain its feed precision after hours of machining; the distance between the X-axis feed system and the contact point of the tool has been minimized to enhance the overall rigidity and machining precision.



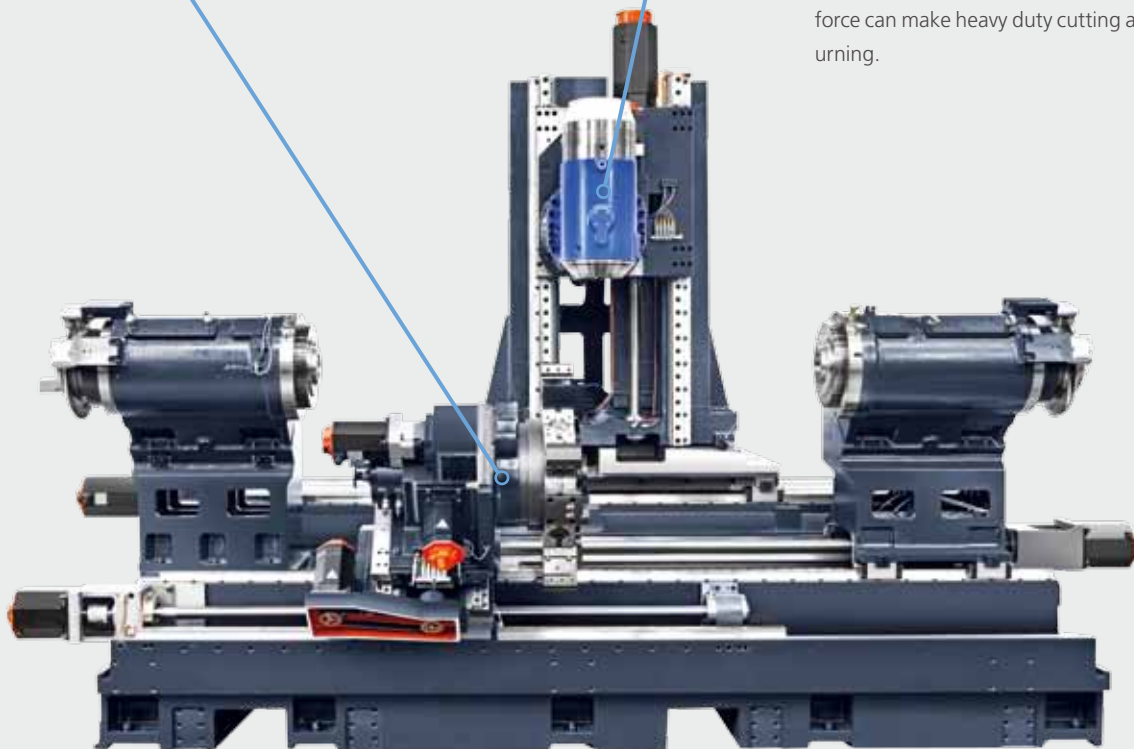
High Rigid Turret

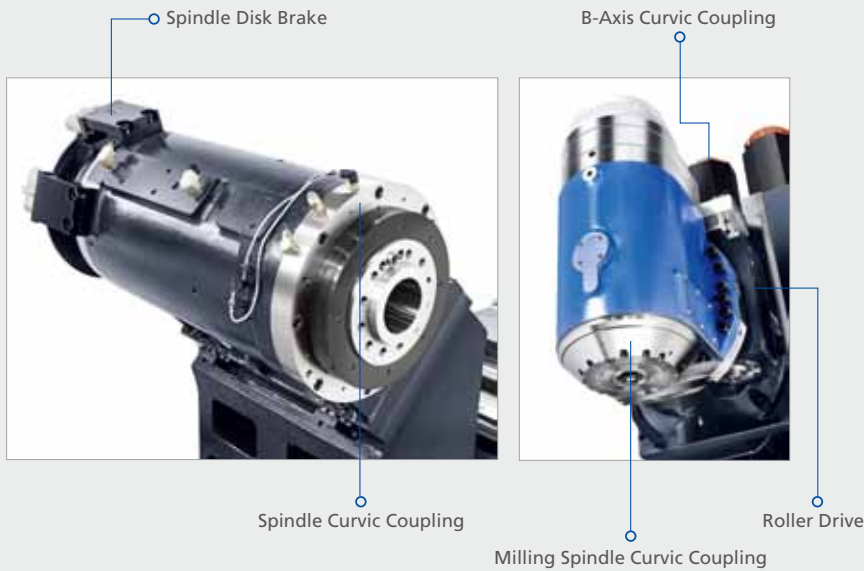
The turret in i3 2500 with a powerful clamping force offers a quick index time for faster, more stable machining.



Multi Functional Milling Spindle

12,000 rpm spindle with Air-oil can provide various milling operation. Powerful clamping force can make heavy duty cutting and turning.





Clamping System Spindle

i3-2500 can guarantee for high quality machining results in milling operation through the powerful clamping of front curvic coupling and the back side disk brake.

- Spindle Curvic Coupling Min. Index Angle : 5°
- Spindle Disk Brake Min. Index Angle : 0.001°

Milling Spindle

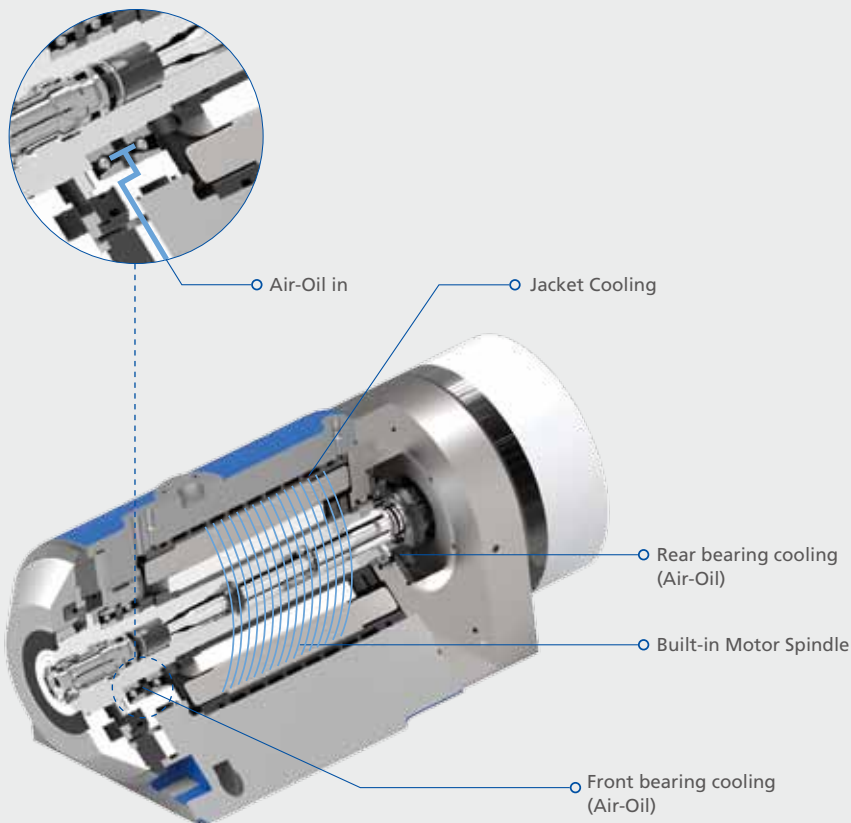
i3-2500 can guarantee for high quality machining results in milling operation through the powerful clamping of front curvic coupling and the back side disk brake.

- Milling Spindle Curvic Coupling Min. Index Angle : 15°

B-AXIS

B-axis curvic coupling can help to make heavy duty machining in milling & turning operation, and roller drive will provide 3 & 5 multi-task milling operation.

- B-axis Curvic Coupling Min. Index Angle : 5°
- Roller Drive Min. Index Angle : 0.001



Spindle assembly

The Hwacheon clean room assembly facility, where the super-precision, superspeed spindle built inside i3 2500 is manufactured, maintains optimal temperature and humidity, and is kept free of any foreign substances. Only the most skilled master engineers are allowed in the assembly facility, in the production of only the best equipment to comply with the toughest quality standard in the industry.

Air-Oil Cooling System

The air-oil is injected directly into the spindle bearing for effective cooling, and the motor and the spindle assembly are jacket-cooled to limit the displacement caused by heat.



USER FRIENDLY DESIGN, A WIDE RANGE OF OPTIONAL FEATURES

i3-2500 turning centers are designed with the end user in mind. The user-friendly machine design and a variety of supplementary options made for stronger, faster, and more precise machining performance.




Magazine Information Display



Linear Scale (Option)

To determine the coordinates with the highest of accuracy, and to correct the axis coordinate error caused by thermal displacement, the magnetic absolute output linear scales can be installed on all axes.



The Hwacheon Lathe Tool Load Detect System constantly detects and diagnoses the tool load under process to prevent tool wear and damage, and to keep your machine and tools in optimal shape.

Load Detection Limit 1

Alarm + Feed Hold

> When the LIMIT 1 Alarm sounds, the system holds the feed and the machine goes into standby.

Load Detection Limit 2

Alarm + Machine Stop

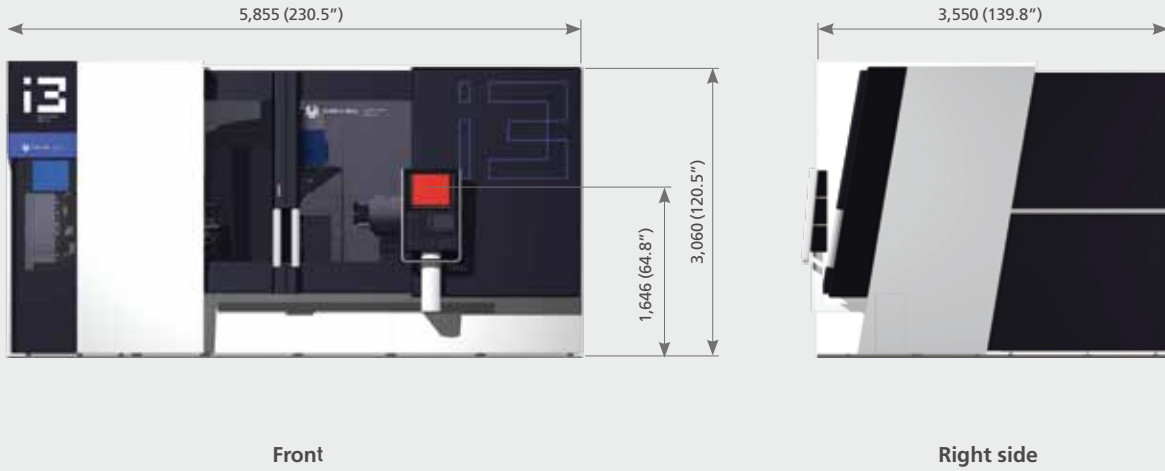
> When the LIMIT 2 Alarm sounds, the system stops the machine, and must be reset to operate it.



Auto measurement system (Option)

Product Data

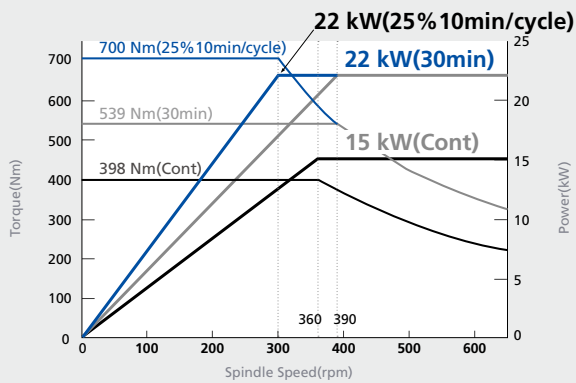
* Unit: mm(inch)



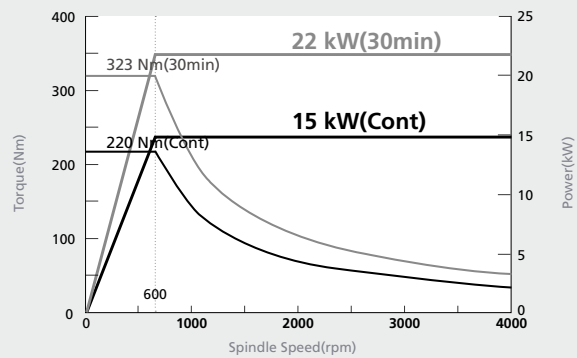
Spindle Power-Torque Diagram

Spindle1 & Spindle2

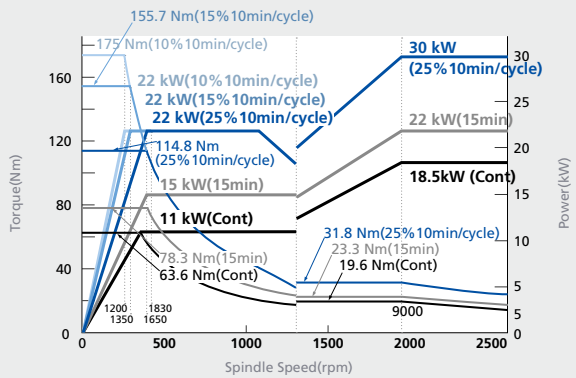
Low Speed



High Speed

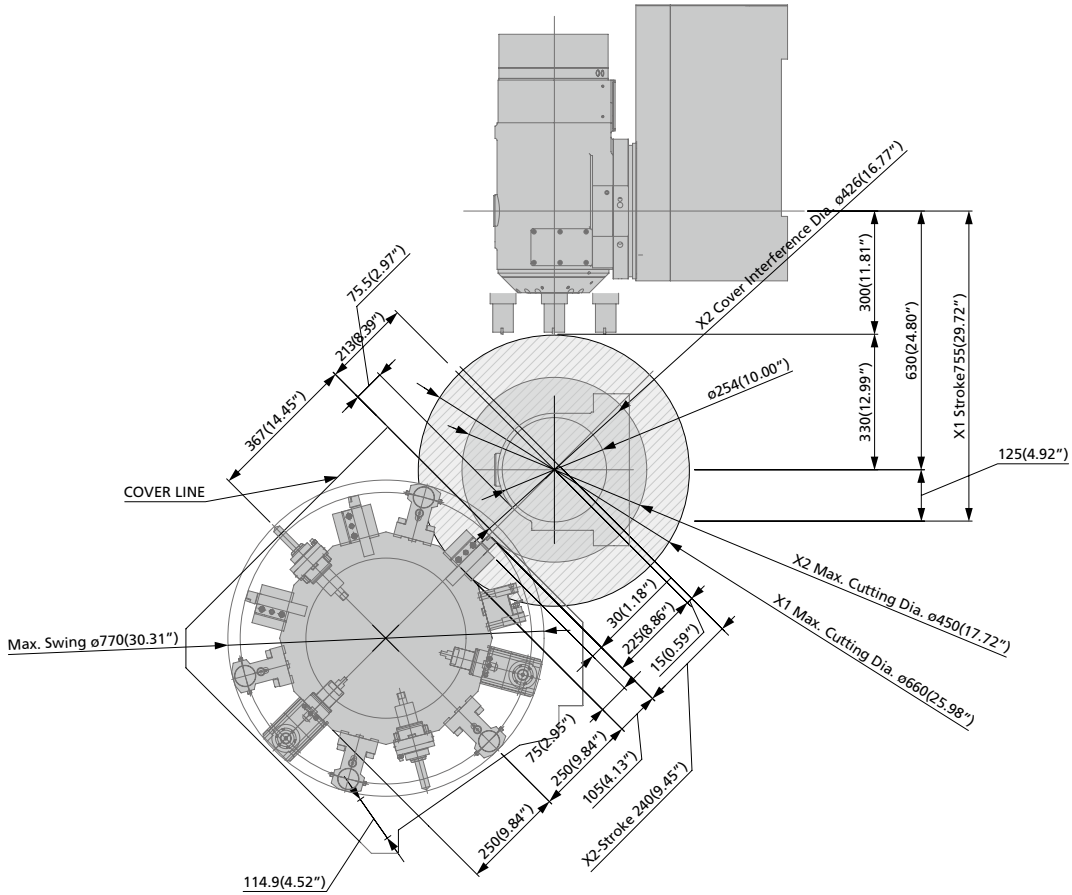


Milling Spindle



Tool Interference Diagram

※Unit: mm(inch)

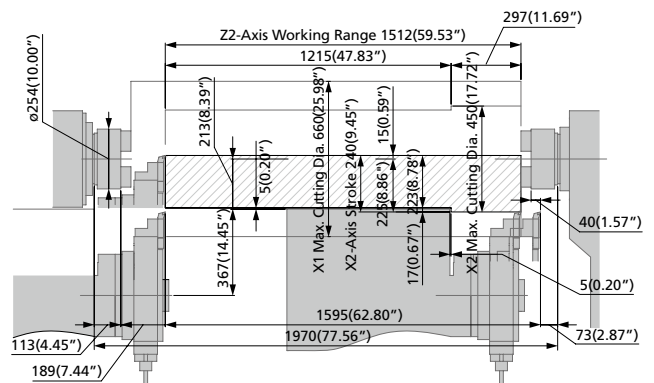
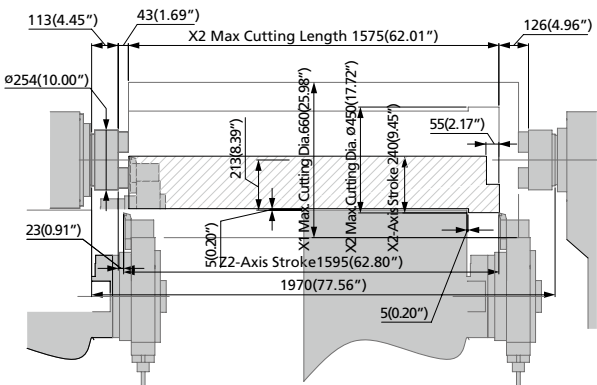


Moving Range

※Unit: mm(inch)

Lower Turret O.D Holder (Front)

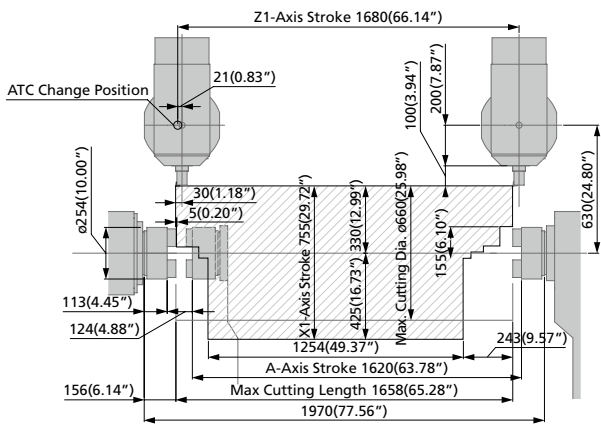
Lower Turret O.D Holder (Back)



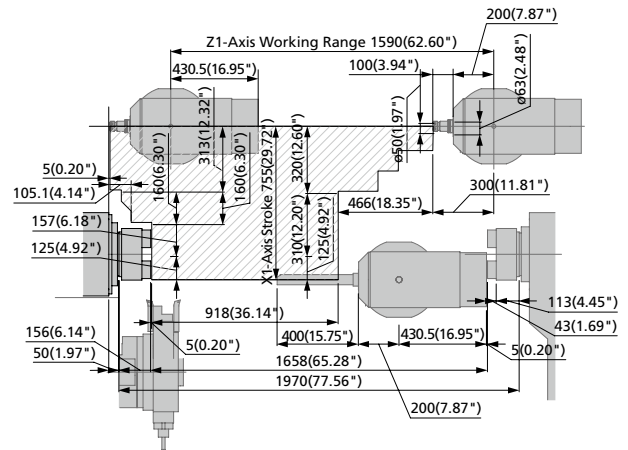
Moving Range

※Unit: mm(inch)

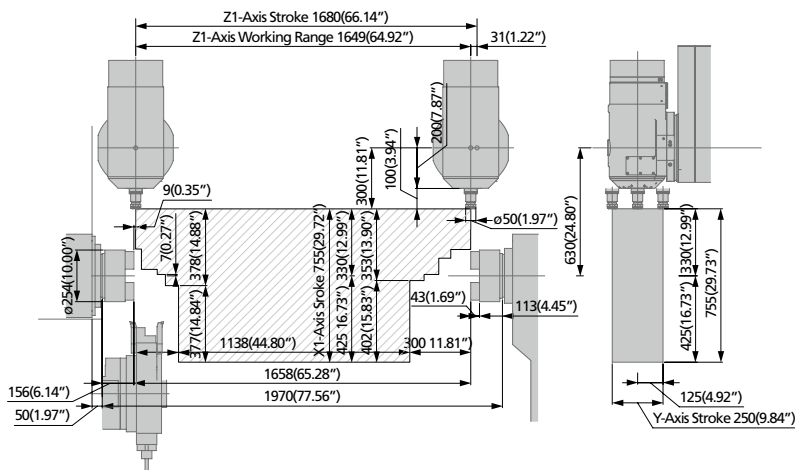
Milling Spindle O.D Holder



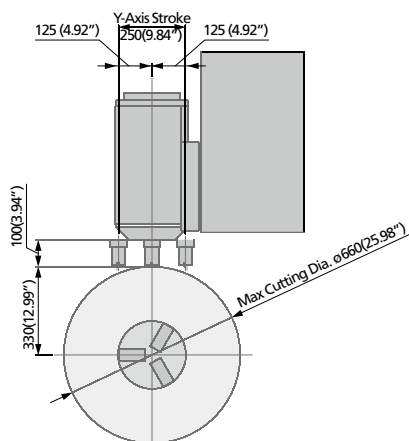
Milling Spindle I.D Holder



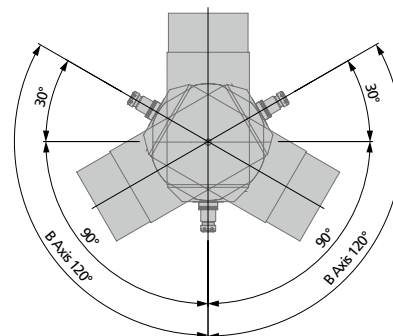
Milling Spindle Mill/Drill Holder



Y-Axis Moving Range

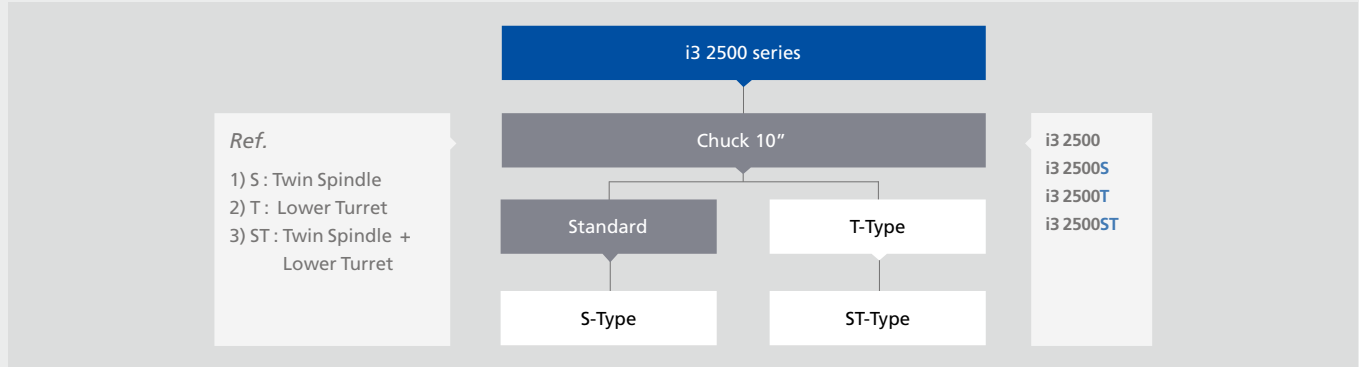


B-Axis Moving Range



Product Configuration

Each product can be configured to fit your application.



Machine Specifications

ITEM		i3 2500	i3 2500T	i3 2500S	i3 2500ST
Capacity					
Swing over bed	mm(inch)	Ø730 (Ø28.7")			
Max. cutting diameter (Upper/Lower)	mm(inch)	Ø660 (Ø25.9")	Ø660/Ø450 (Ø25.9/Ø17.7")	Ø660 (Ø25.9")	Ø660/Ø450 (Ø25.9/Ø17.7")
Max. cutting length (Upper/Lower)	mm(inch)	1,658 (65.3")	1,658/1,575 (65.3"/62")	1,658 (65.3")	1,658/1,575 (65.3"/62")
Chuck size (S1 + S2)	inch	10"		10" + 10"	
Spindle (Spindle1 & Spindle2)					
Type of spindle nose	ASA	A2-8			
Max. spindle speed	rpm	4,000			
Through spindle hole diameter	mm(inch)	Ø91 (Ø3.6")			
Max. bar size	mm(inch)	Ø79 (Ø3.1")			
Min. index angle (CZ Sensor & Curvic)	°(deg.)	0.001° & 5°			
Spindle motor	kW(HP)	22/15kW (30/20HP)			
Milling Spindle					
Type of spindle taper hole	-	HSK-A63			
Max. spindle speed	rpm	12,000			
Spindle index angle	°(deg.)	15°			
B-axis min. index angle	°(deg.)	0.001° & 5°			
Method of spindle lubrication & cooling		Air-Oil Lub. & Jacket Cooling			
Travel					
X1/X2-axis max. travel	mm(inch)	755 (29.7")	755/240 (9.4")	755 (29.7")	755/240 (9.4")
Z1/Z2-axis max. travel	mm(inch)	1,680 (66.1")	1,680/1,595 (66.1"/62.8")	1,680 (66.1")	1,680/1,595 (66.1"/62.8")
Y-axis max. travel	mm(inch)	±125(5")			
B-axis max. travel	°(deg.)	±120°			
A-axis max. travel	mm(inch)	-	-	1,620 (63.7")	
Feed Rates					
Rapid speed (X1/X2/Z1/Z2)	m/min(ipm)	40/-/40/- (1,574.8/-/1,574.8/-)	40/30/40/30 (1,575/1,181/1,575/1,181)	40/-/40/- (1,575/-/1,575/-)	40/30/40/30 (1,575/1,181/1,575/1,181)
Rapid speed (Y/A)	m/min(ipm)	40/30/(1,575/1,181)			
Turret					
Type of turret	-	-	BMT-65	-	BMT-65
Number of tool station	ea	-	12	-	12
Tool size	mm(inch)	-	□25/Ø50 (=0.9/Ø1.9)	-	□25/Ø50 (=0.9/Ø1.9)
Max. spindle speed	rpm	-	4,000	-	4,000
Spindle motor	kW	-	2.7	-	2.7
ATC					
Type of tool shank	-	HSK-A63			
Tool storage capacity	ea	40			
Max. tool diameter (With adjacent tools / Without)	mm(inch)	Ø90 (Ø3.5") / Ø125 (Ø4.9")			
Max. tool length	mm(inch)	400 (15.7")			
Max. tool weight	kg,(lb _r)	12 (26.4)			
Machine Size					
Height	mm(inch)	3,060 (120.4")			
Floor space (Length × Width)	mm(inch)	5,855 × 3,550 (230.5" × 139.7")			
Weight	kg,(lb _r)	18,000 (39,683)	20,000 (44,092)	18,500 (40,785)	20,500 (45,194)

Standard and Optional Product Components

Standard Accessories		Optional Accessories	
• Air oil unit for milling Spindle lubrication	• Manual Guide i	• Air blower	• NC cooler
• B-Axis with control 0.001° and 5°	• Manual & parts list	• Air gun	• NC controller Fanuc-31iB
• C1,C2 axis with control 0.001° and 5° (Spindle 1, Spindle2)	• Magazine with 40 tools	• Bar feeder interface	• Oil skimmer
• Coolant system	• NC Controller Fanuc 31i –B5 with 15" color LCD	• Chip conveyor & box (side type)	• Scale (Y, X2, Z2)
• Cooling system for spindle	• Scale (X1, Z1, B)	• Chuck dual pressure system	• Signal lamp with 3 colors (R, G, Y)
• Door interlock	• Set of soft jaws	• Chuck pressure check switch	• Tool life management
• Foot switch	• Signal lamp with 2 colors (R,G)	• Chuck pressure compensation	• Tool presetter (Auto)
• Hydraulic chuck & cylinder	• Tool kit & box	• Coolant gun	• Tool & work counter (External / Internal)
• Hydraulic unit	• Turret with 12 stations (in case of t model)	• Set of hard jaws - 10"	• Transformer
• Leveling bolt & plate	• Work light	• High pressure coolant 15bar, 30bar	• Turnmill holder (Axial / Radial)
• Lubrication system		• L-HTLD (Lathe-Hwacheon Tool Load Detect)	• U-Drill holder
		• Mist collector	

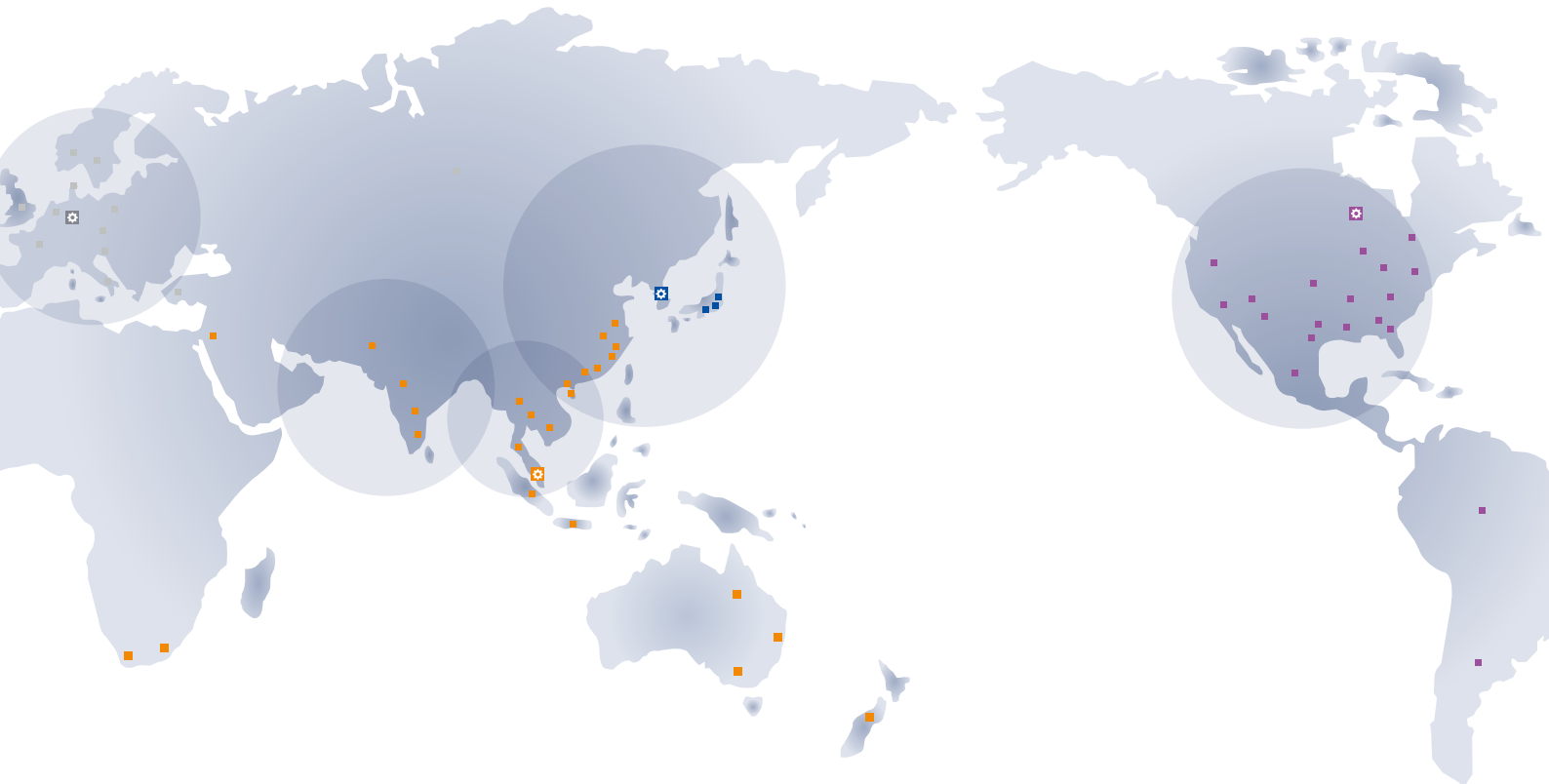
NC Specifications [Fanuc 31i Series]

※ - : Not available S : Standard O : Option

ITEM	SPECIFICATION	31i-B	31i-B5	ITEM	SPECIFICATION	31i-B	31i-B5
Controlled axis				Program input			
Controlled axis (Cs axis)	1 Turret 2 Turret	X1,Z1,C1,Y,B X2,Z2,C2,A		Canned cycles		S	S
Simultaneously controlled axes		4-axis	5-axis	Multiple repetitive cycle		S	S
Least input increment	0.001mm, 0.0001deg, 0.0001inch	S	S	Multiple repetitive cycle II		S	S
Inch / metric conversion	G20, G21	S	S	Canned cycles for drilling		S	S
Stored stroke check 1		S	S	Manual guide i (Threading repair)		S	S
Stored stroke check 2,3		O	O	Coordinate system setting	G50	S	S
Chamfering on/off		S	S	Coordinate system shift		S	S
Backlash compensation		S	S	Workpiece coordinate system preset	G92.1	O	O
Stored pitch error compensation		S	S	3-dimensional coordinate system conversion	G68.1	S	S
Synchronous / Composite control		S	S	3-dimensional manual feed		O	O
Operation				Spindle speed function			
Automatic & MDI operation		S	S	Constant surface speed control	G96 / G97	S	S
Program number search		S	S	Spindle override	50 - 120%	S	S
Sequence number search		S	S	Spindle orientation		S	S
Dry run, single block		S	S	Rigid tapping		S	S
Manual handle feed	1Unit	S	S	Spindle synchronous control		S	S
Manual handle feed rate	x1, x10, x100	S	S	Tool function / Compensation			
Tool retract and recover		O	O	Tool function	T4-digits	S	S
DNC Operation with Memory card		S	S	Tool offset pairs	400pairs	S	S
Tool direction feed(G68.1)		S	S	Tool nose radius compensation		S	S
Interpolation function				Tool geometry/wear compensation		S	S
Positioning	G00	S	S	Tool life management		O	O
Linear interpolation	G01	S	S	Automatic tool offset	Tool presetter option is required	S	S
Circular interpolation	G02, G03	S	S	Direct input tool offset value measured B	Tool presetter option is required	S	S
Dwell(Per seconds)	G04	S	S	Tool offset conversion function		S	S
Polar coordinate interpolation	G12.1, G13.1	S	S	Smooth Tool center point control	G43.4	-	S
Variable lead threading	G34	S	S	Editing operation			
Cylindrical interpolation	G7.1	S	S	Part program storage length of each path	1,280m(512KB)	S	S
Ref. position return 1st	G28	S	S	Part program storage length of each path	2,460M(1MB), 4,920M(2MB)	O	O
Ref. position return check	G27	S	S	Number of register able programs of each path	500ea	S	S
3/4th Ref. position return	G30	O	O	Background editing		S	S
Threading	G32	S	S	Extended part program editing		S	S
Multiple threading		S	S	Play back		O	O
Thread Cutting retract		S	S	Operation / Display			
Continuous threading		S	S	Clock function		S	S
Balance cutting(Only for 2 path)	G68/G69	S	S	Self-diagnosis function		S	S
Polygon machining with two spindle	G51.2	O	O	Alarm history display		S	S
Torque limit skip	(Z2, A-axes)	S	S	Help function		S	S
Arbitrary speed threading		O	O	Run hour and parts count display		S	S
Feed function				Graphic function		S	S
Rapid traverse override	F0, F25, F50, F100	S	S	Multi-language display	English, German, French, Italian, Chinese, Spanish, Korean, Portuguese, Polish, Hungarian, Swedish	S	S
Feed per minute (mm/min)	G98	S	S	HWACHEON Software			
Feed per revolution (mm/rev)	G99	S	S	High-speed HRV3 function		S	S
Rapid traverse bell-shaped acceleration/deceleration		S	S	Hwacheon Artificial Intelligence Control System (HAI) : 200 Block		S	-
Feedrate override	0 - 200 %	S	S	Hwacheon Artificial Intelligence Control System (HAI) : 600		O	S
Jog feed override	0 - 3,100 mm/min	S	S	Hwacheon Artificial Intelligence Control System (HAI) : 1000 block		O	O
Program input				Data input / output			
Tape code	EIA RS244 / ISO840	S	S	Reader/Puncher interface CH1	RS232C	S	S
Optional block skip	1ea	S	S	Data server	256MB	S	S
Program number	O4 - Digits	S	S	Ethernet Function(Embedded Ethernet)		S	S
Sequence number	N5 - Digits	S	S	Memory card interface		S	S
Decimal point programming		S	S	Memory USB interface		S	S
Programmable data input	G10	S	S	Others			
Direct drawing dimension programming		S	S	Display unit	10.4" color LCD		S
G code system	A	S	S				
Workpiece coordinate system	G54-G59	S	S				
Addition of workpiece coordinate system pair	48 pairs	O	O				
Sub program call	10 folds nested	S	S				
Custom macro B		S	S				
Addition of custom macro common variables	#100-#199, #500-#999	S	S				

Hwacheon Global Network

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HWACHEON

Please call us for product inquiries.

www.hwacheon.com

The product design and specifications may change without prior notice.
Read the operation manual carefully and thoroughly before operating the product,
and always follow the safety instructions and warnings labels attached on the surfaces of the machines.

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