



C1

6" Chucker Horizontal Turning Center
with Magazine & Y-Axis





6" CHUCKER HORIZONTAL TURNING CENTER WITH MAGAZINE & Y-AXIS

Multiple Process Turning Center

C1 is an integrated multiplex turning center that combines the processing capability of a turning center with the processing capability of a machining center obtainable through Y and C-axis control. It can completely manufacture parts with complicated shapes with a single chucking operation.

In particular, the standard-fitted magazine's automatic tool change function enables rapid responses during machining of parts that require many tools.

1 Motor Case / RC Motor / Titanium 2 Joint / Tripod / Titanium 3 Part / Handflash / Aluminium
4 Hub / Bicycle / Titanium

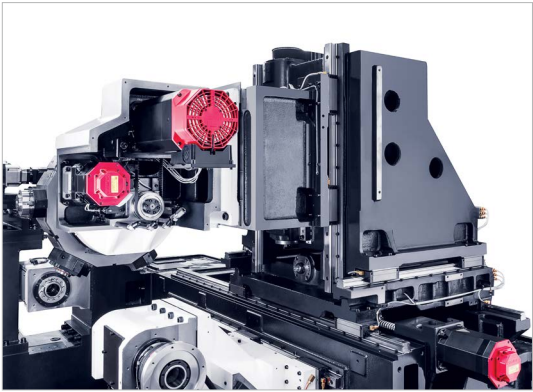


PROCESS-INTEGRATED MACHINING WITH MAGAZINE & Y-AXIS

C1 has been designed to minimize thermal displacement, and the arrangement of units in a heat-symmetrical structure achieves superb thermal stability. A notable feature is the rotary tool module inside the turret, which maintains excellent processing quality even during prolonged operation thanks to Hwacheon's unique cooling system that ensures stable heat control.

Along with machining stability, C1 comes with a variety of extra features including independent orthogonal Y-axis, opposing second spindle, and a tool-mountable magazine. These options enable quick production, process integration, reduced turnaround, and low cost, allowing you to respond quickly to the market environment that demands high value-added production.





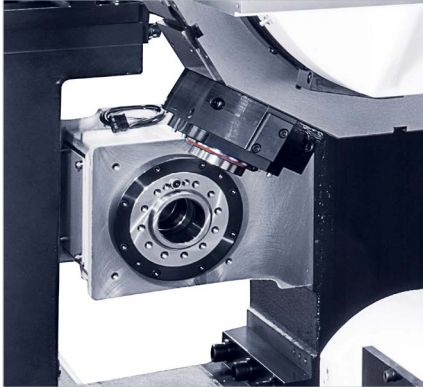
Orthogonal Y-axis

Independent orthogonal structure of X, Y, and Z-axes reduces feed error to zero, sustaining high rigidity and high precision even during prolonged processing.



Magazine

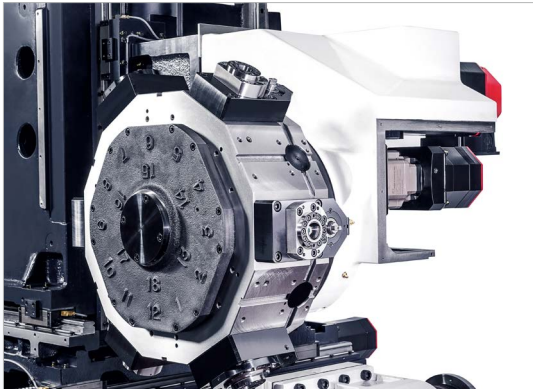
The magazine can be mounted with various tools, enabling multiple lathing and milling processes in a single, uninterrupted operation.



High-speed, high-power spindle

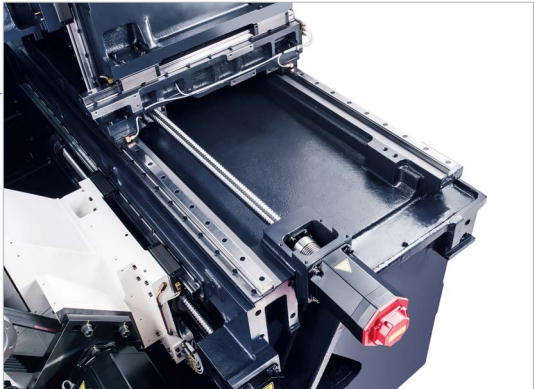
The culmination of Hwacheon's accumulated technical expertise, the high-power spindle enables stable and precise machining during high-speed operations.





High-precision, High-rigidity turret

Mounted with up to 18 tools, the turret enables even faster and more stable machining through multiplex operations.



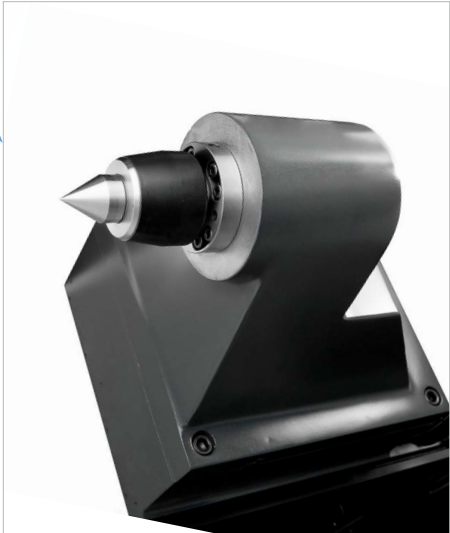
High-rigidity LM guide

High-rigidity LM guides are installed on all axes, minimizing noncutting time through rapid feeding to achieve fast and stable machining performance.



Second spindle (YSMC specs)

Using the opposing second spindle allows carrying out two processes with a single chucking operation, maximizing productivity.



Digital tailstock

The tailstock, fitted with a servo motor and ball screws, realizes precise machining by providing a stable support for the material on the main spindle through automatic positional determination.



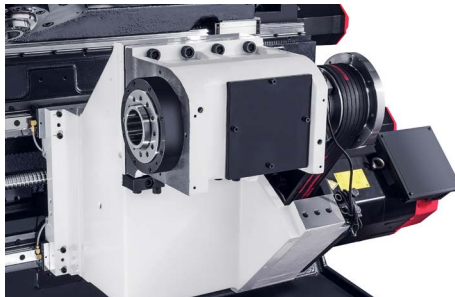
USER FRIENDLY DESIGN, A WIDE RANGE OF OPTIONAL FEATURES

With a user-centric architecture, C1 offers a user-friendly design and a variety of options. Focusing on actual operators, implementation of various special, highly-utilizable functions helps operators concentrate fully on machining operations and work more safely and efficiently.

Based on Hwacheon's exceptional technological expertise, a wide range of options are available for upgrading performance, ensuring more powerful, fast and precise results.




Automatic Tool Presetter (Option)



2nd Spindle (Option)

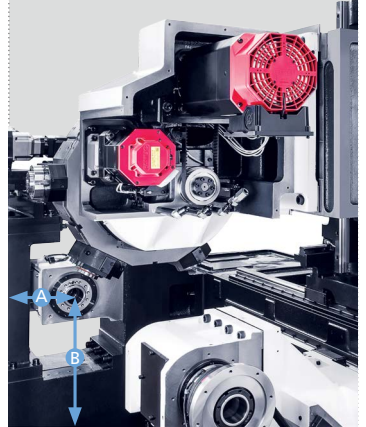
L-HTLD: Hwacheon Lathe Tool Load Detect System (Option)

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

Load Detection Limit 1	Load Detection Limit 2
<p>Alarm + Feed Hold</p> <p>> When the LIMIT 1 Alarm sounds, the system holds the feed and the machine goes into standby.</p>	<p>Alarm + Machine Stop</p> <p>> When the LIMIT 2 Alarm sounds, the system stops the machine, and must be reset to operate it.</p>

Excellent accessibility

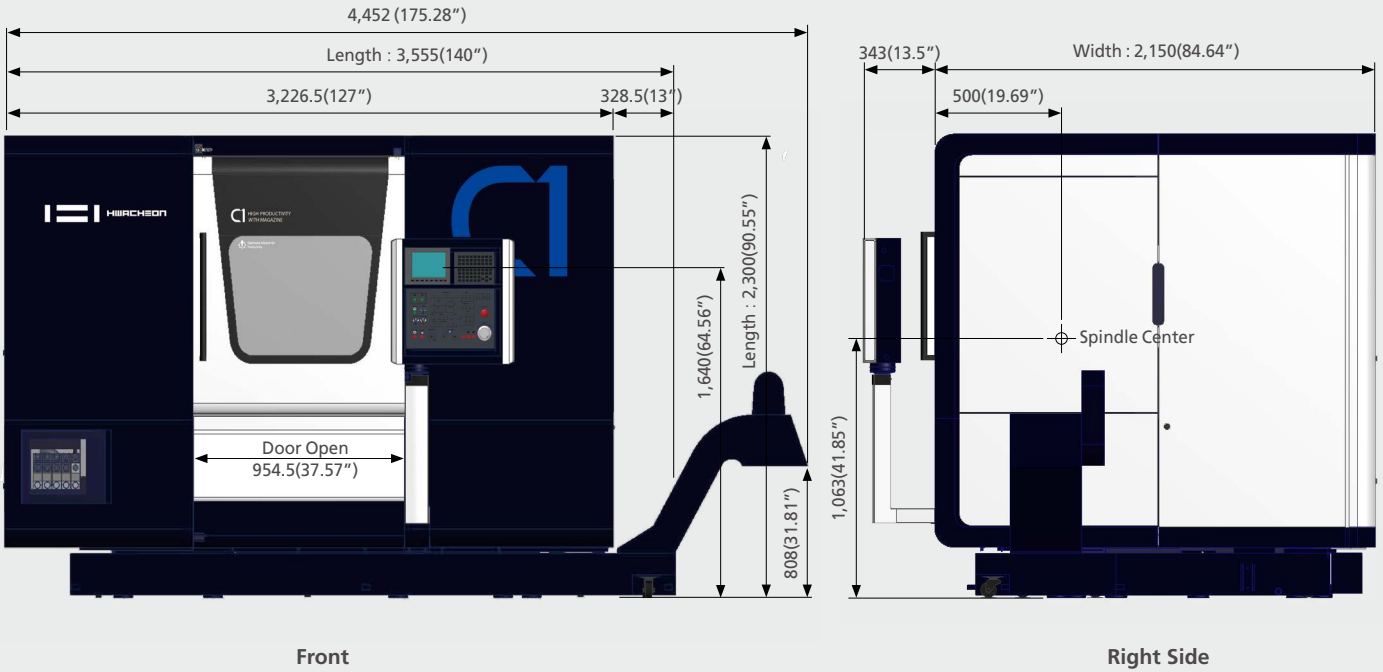
- A** Distance between user and spindle center : 500mm
- B** Elevation from the ground : 1,063mm



Minimizing the operator-spindle center distance maximizes user convenience during general operation and mounting and dismantling of materials, and an eco-friendly structural design realizes perfect oil-water separation in the Z and Y-axis.

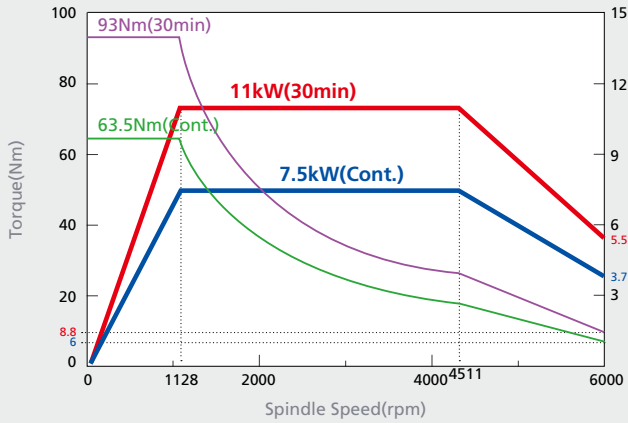
Product Data

* Unit: mm(inch)

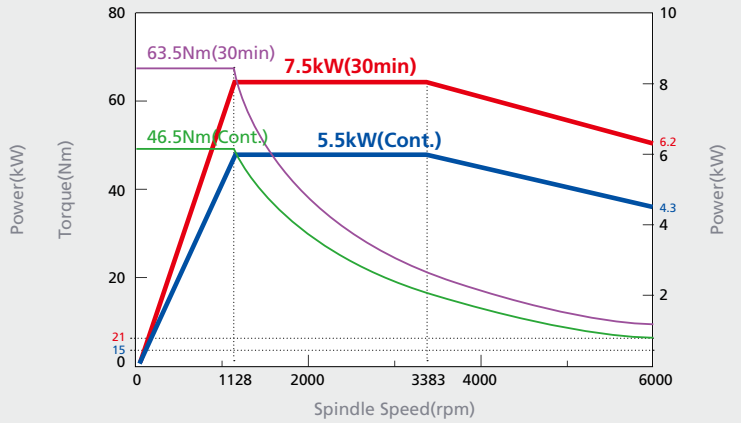


Spindle Power-Torque Diagram

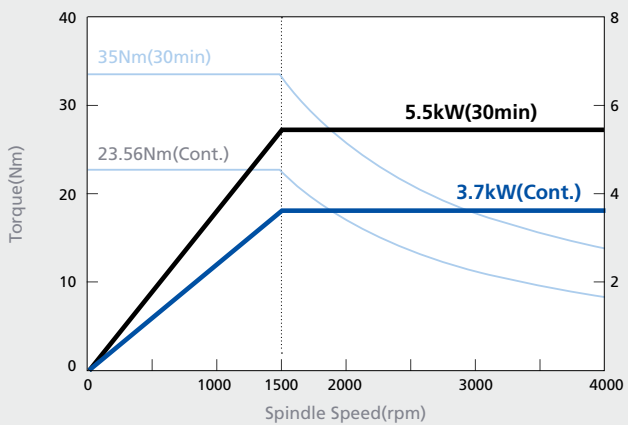
1st Spindle



2nd Spindle (Option)

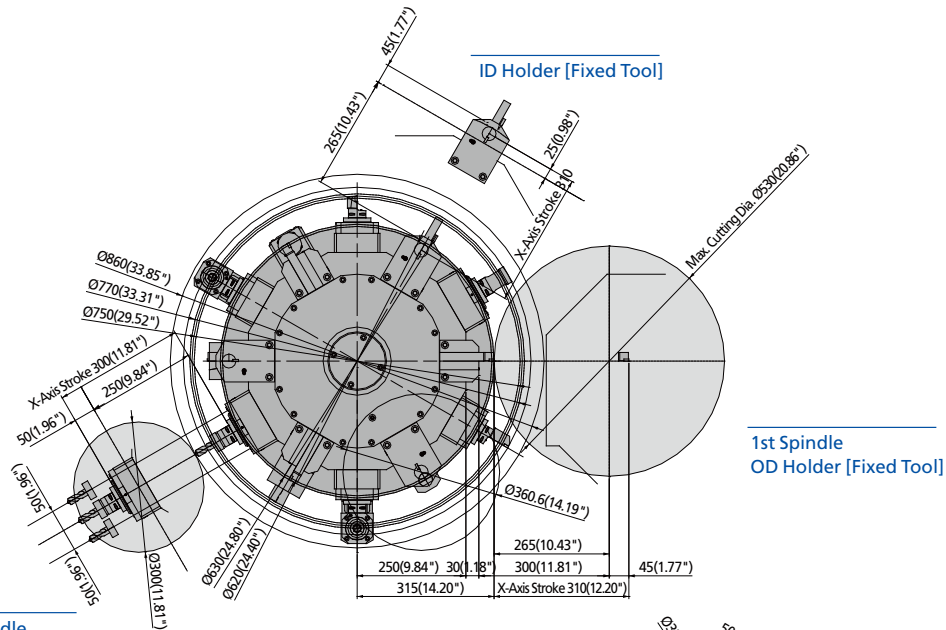


Turnmill

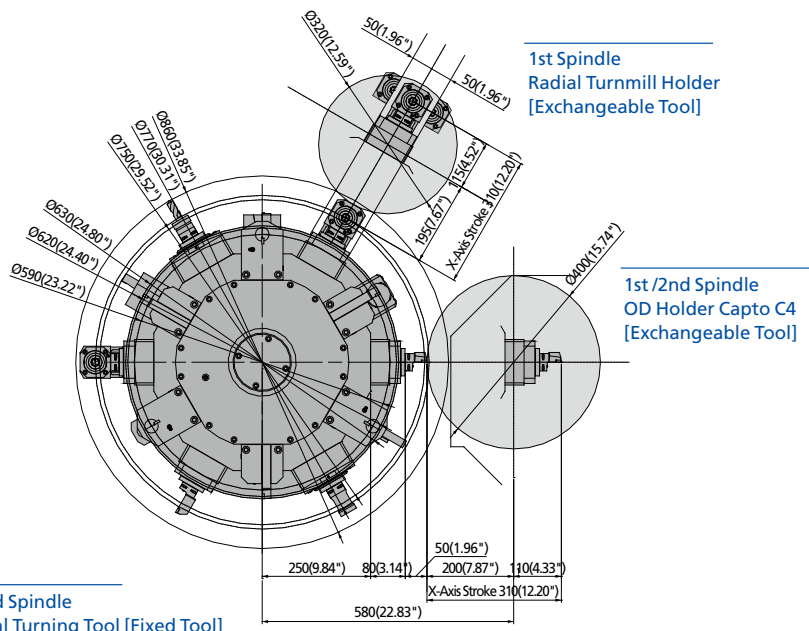


Tool Interference Diagram

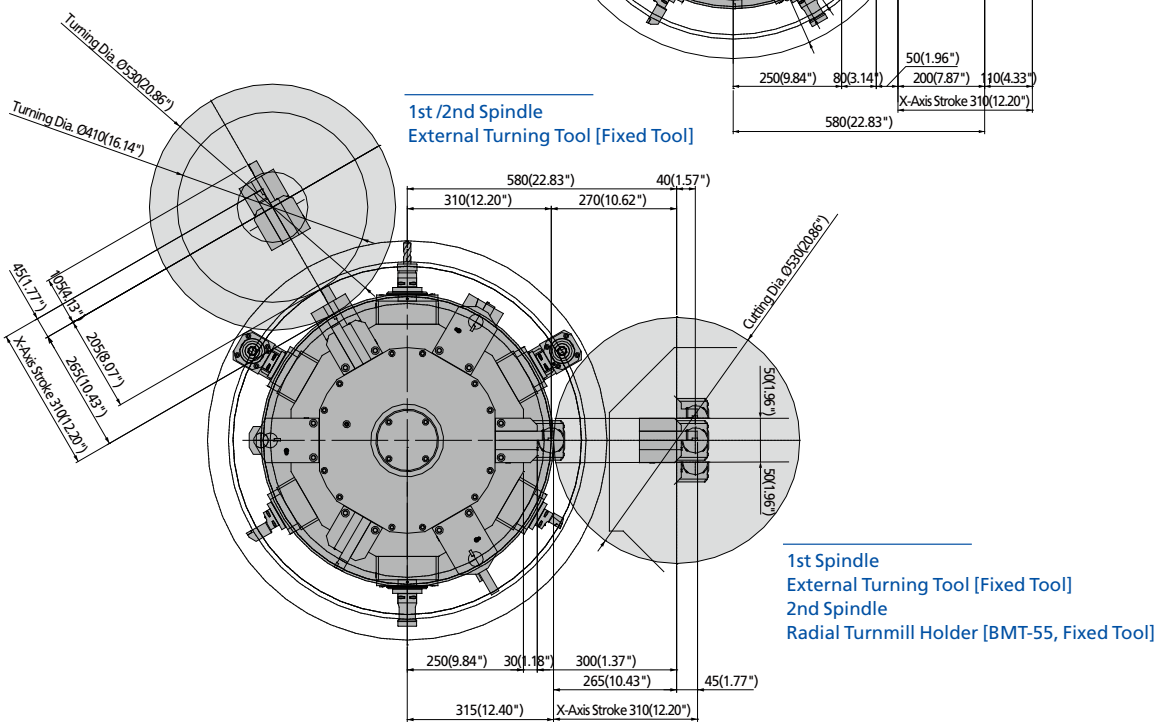
※ Unit : mm(inch)



1st /2nd Spindle Axial Turnmill Holder [Exchangeable Tool]



1st /2nd Spindle External Turning Tool [Fixed Tool]

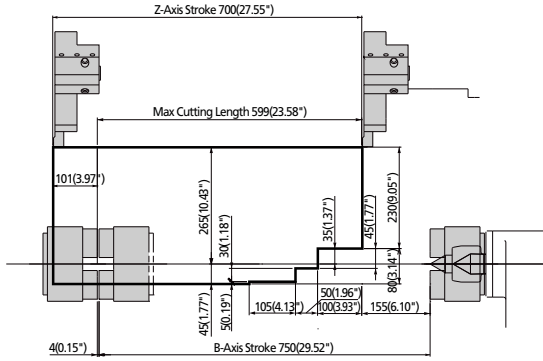


Moving Range

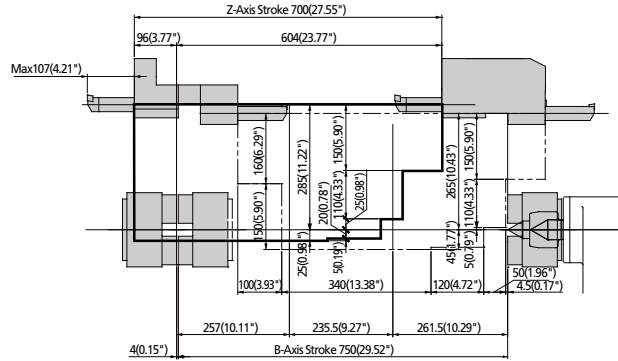
※ Unit: mm(inch)

1st Spindle

OD Holder [Fixed Tool]

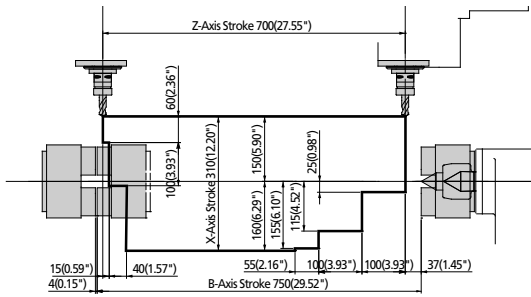


ID Holder [Fixed Tool]



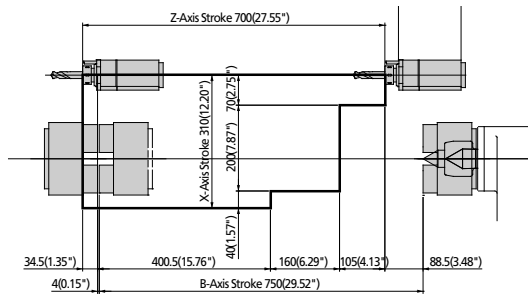
1st /2nd Spindle

Axial Turnmill Holder [Exchangeable Tool]



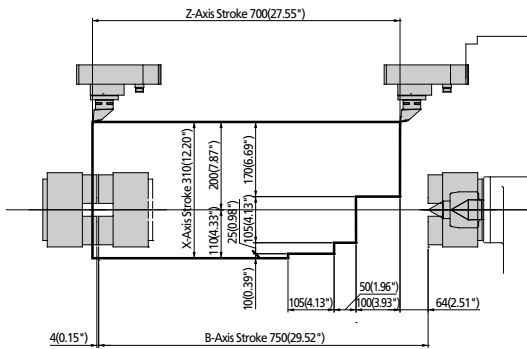
1st Spindle

Radial Turnmill Holder [Exchangeable Tool]



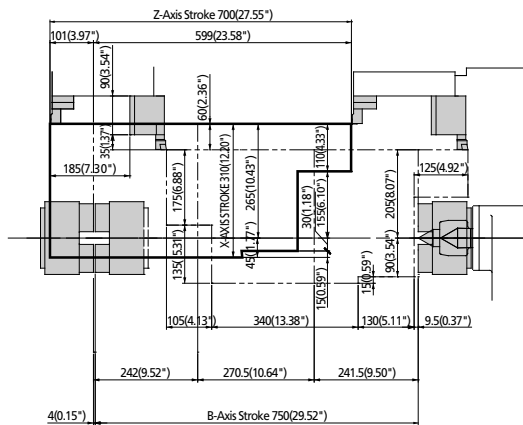
1st /2nd Spindle

OD Holder Capto C4 [Exchangeable Tool]



1st /2nd Spindle

External Turning Tool [Fixed Tool]

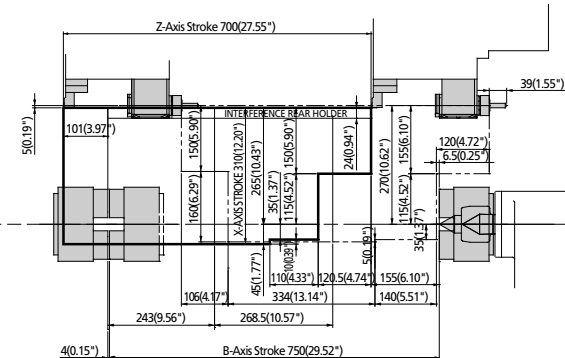


1st Spindle

External Turning Tool [Fixed Tool]

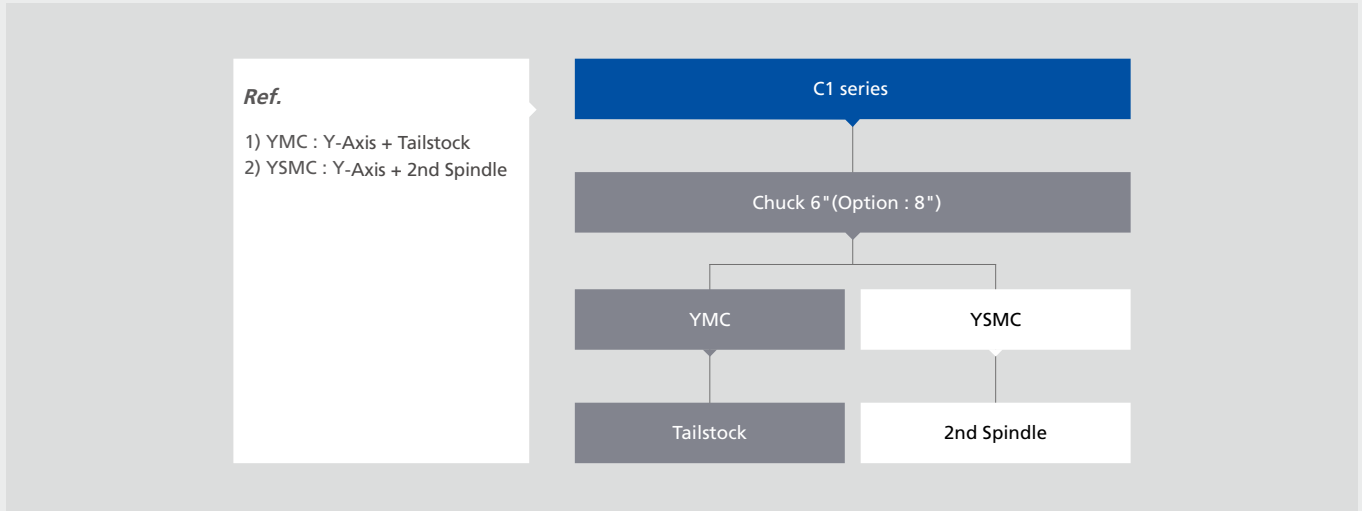
2nd Spindle

Radial Turnmill Holder [BMT-55, Fixed Tool]



Product Configuration

Each product can be configured to fit your application.



Machine Specifications

ITEM		C1 YMC	C1 YSMC
Capacity			
Swing over Bed	mm(inch)	Ø730 (Ø28.74")	
Max. Cutting Diameter (S1 / S2)	mm(inch)	Ø530 (Ø20.86")	Ø530 (Ø20.86") / Ø410 (Ø16.14")
Max. Cutting Length	mm(inch)	599 (Ø23.58")	599 (Ø23.58") / 584 (Ø22.99")
Chuck Size (S1 & S2)	inch	6" (Opt. 8")	
Spindle			
Type of Spindle Nose	ASA	A2-5	
Max. Spindle Speed	rpm	6,000	
Through Spindle Hole Diameter / Max. Bar Size	mm(inch)	Ø56 (Ø2.20") / Ø45 (Ø1.77")	
Index Angle (S1 & S2)	°(deg)	0.001°	
Spindle Motor (S1 , S2)	kW(HP)	11 / 7.5 (15 / 10)	11 / 7.5 (15 / 10), 7.5 / 5.5 (10 / 7.5)
Turret			
Number of Tool Station	ea	18	
Tool Size / Type	mm(inch) / -	□25 x Ø40 (1" x Ø1.57") / Capto C4	
Turret Indexing Time	sec/step	0.467	
Axes			
Rapid Speed (X / Z / Y / B)	m/mm(ipm)	30 / 30 / 15 / 30	
Max. Stroke (X / Z / Y / B)	mm(inch)	310 / 700 / ±50 / 750 (12.2" / 27.55" / ±1.96" / 29.52")	
Feed Motor (X / Z / Y / B)	kW(HP)	7.0 / 2.2 / 2.2 / 2.2 (9.3 / 3 / 3 / 3)	
Tailstock			
Quill Dia. / Tailstock Body Stroke	mm(inch)	Ø80 (3.14") / 750 (29.5")	
Quill Taper	MT	#4	
Magazine			
Type of Tool Shank	-	Capto C4	
Tool Storage Capacity	ea	12	
Max. Tool Diameter	mm(inch)	Ø50 (1.96")	
Max. Tool Length (X / Z)	mm(inch)	100 (3.93") / 215 (8.46") (from Tool shank center)	
Max. Tool Weight	kg,(lb.)	5 (11)	
Turnmill			
Spindle Motor	kW(HP)	5.5 / 3.7 (7.5 / 5)	
Max. Spindle Speed	rpm	4,000 (Opt. 6,000)	
Min. Spindle Indexing Angle	°(deg)	0.001°	
BMT specifications / Turn mill tools	-	BMT 55 / Capto C4 + BMT 55	
Tank Capacity			
Lubrication / Hydraulic	ℓ (gal)	12 (3.17) / 50 (13.21)	
Coolant	ℓ (gal)	200 (52.83)	
Power Source			
Electrical Power Supply	kVA	40	
Dimension			
Height / Floor Space (L x W)	mm(inch)	2,300(90.55") / 3,555 (140") x 2,150 (84.64")	
Weight	kg,(lb.)	7,500 (16,534)	
NC Controller		Fanuc 0i-TF	

Standard and Optional product components


Standard Accessories		Optional Accessories	
• Air Blower (YSMC)	• Tailstock - MT#4 (YMC)	• Air Blower (YMC)	• Parts Catcher
• Chuck Pressure Compensation	• Tooling System	• Air Gun	• Set of Hard Jaw
• Door Interlock	• Tool Kit & Box	• Auto Door	• Signal Lamp with 3 Colors (R,G,Y)
• Foot Switch	• Turnmill Function Including(0.001°)	• Bar Feeder Interface	• Tool & Work Counter (External / Internal)
• High Pressure Coolant Pump 6Bar	• Work Light	• Chuck Pressure Check Switch	• Tool Life Management
• Hydraulic Chuck & Cylinder	• Y-axis Addition (±50 mm)	• Chip Conveyor (Side Type)	• Tool Presetter (Automatic)
• Hydraulic Unit 50kg/cm ²	• 10.4" Color LCD	• Coolant gun	• Transformer
• Leveling Bolt & Plate		• Differential Pressure Device	• Turn Mill Holder, Axial / Radial (BMT-55)
• Lubrication Unit		• High Pressure Coolant Pump 15bar	• Turn Mill Holder Radial (Capto C4)
• Magazine (12 tools)		• L-HTLD	• Turning Holder for Capto (C4)
• Manual & Parts List		(Lathe-Hwacheon Tool Load Detect)	• U-Drill Holder
• Manual Guide i		• Linear Scale (X/Y/Z)	• 15" Color LCD (only FANUC)
• Signal Lamp with 2 Colors (R, G)		• NC Cooler	
• Set of Soft Jaws		• Oil Skimmer	

NC Specifications [Fanuc 0i-TF]

※ - : Not available S : Standard O : Option

ITEM	SPECIFICATION	YMC	YSMC	ITEM	SPECIFICATION	YMC	YSMC
Controlled axis				Program input			
Controlled axis (Cs axis)	-	4 - Axes	6 - Axes	G code system	A	S	S
Simultaneously controlled axes	-	4 - Axes	4 - Axes	Programmable data input	G10	S	S
Least input increment	0.001mm, 0.001deg, 0.0001inch	S	S	Sub program call	10 folds nested	S	S
Least input increment 1 / 10	0.0001mm, 0.0001deg, 0.00001inch	O	O	Custom Macro B		S	S
inch/metric conversion	G20, G21	S	S	Addition of custom macro -common variables	#100 ~ #199, #500 ~ #999	S	S
Store Stroke Check 1		S	S	Canned Cycles		S	S
Store Stroke Check 2, 3		S	S	Multiple repetitive cycle		S	S
Chamfering on / off		S	S	Multiple repetitive cycle II		S	S
Backlash compensation		S	S	Canned Cycles for Drilling		S	S
Operation				Manual Guide i		S	S
Automatic & MDI operation		S	S	Spindle speed function			
Program number search		S	S	Constant surface speed control	G96 / G97	S	S
Sequence number search		S	S	Spindle override	50 ~ 150%	S	S
Dry Run, Single Block		S	S	Spindle orientation		S	S
Manual handle feed / feed rate	1Unit / x1, x10, x100	S	S	Rigid tapping		S	S
Interpolation function				Spindle synchronous control		S	S
Positioning / Linear interpolation / Circular interpolation	G00 / G01 / G02,G03	S	S	Tool function / Compensation			
Dwell (Per seconds)	G04	S	S	Tool function	T4-digits	S	S
Polar coordinate interpolation	G12.1 / G13.1	S	S	Tool offset pairs	128 pairs	S	S
Cylindrical interpolation	G7.1	S	S	Tool nose radius compensation		S	S
Threading	G32	S	S	Tool geometry / Wear compensation		S	S
Multiple threading		S	S	Tool life management		O	O
Continuous threading		S	S	Automatic tool offset	Tool presetter option is required	O	O
Threading retract		S	S	Direct input tool offset value measured B	Tool presetter option is required	O	O
Variable lead threading	G34	S	S	Editing operation			
Reference position return 1st	G28	S	S	Part program storage length	1,280m (512kB)	S	S
Reference position return check	G27	S	S	Number of register able programs	400ea	S	S
2,3,4th reference position return	G30	S	S	Background editing		S	S
Arbitrary Speed Threading		O	O	Extended part program editing		S	S
Feed function				Play Back		S	S
Rapid traverse override	F0, F25, F50, F100	S	S	Operation / Display			
Feed per minute (mm/min)	G98	S	S	Clock function		S	S
Feed per revolution (mm/rev)	G99	S	S	Self-diagnosis function		S	S
Rapid traverse bell-shaped acceleration / Deceleration		S	S	Alarm history display		S	S
Feedrate override	0 ~ 150%	S	S	Help function		S	S
Jog feed override	0 ~ 1,260mm/min	S	S	Run hour and parts count display		S	S
Program input				Dynamic graphic display		O	O
Tape code	EIA / ISO	S	S	Multi-language display	Korean, English, German, French, Italian, Chinese, Spanish, Portuguese, Polish, Hungarian, Swedish, Russian	S	S
Optional block skip	9ea	S	S	Data input / Output			
Program number	O4 - Digits	S	S	Reader / Puncher interface CH1	RS232C	S	S
Sequence number	N8 - Digits	S	S	Reader / Puncher interface CH2	RS232C	S	S
Decimal point programming		S	S	Ethernet interface		S	S
Coordinate system setting	G50	S	S	Memory card interface		S	S
Coordinate System Shift		S	S	USB card interface		S	S
Workpiece coordinate system	G54 ~ G59	S	S	Others			
Workpiece coordinate system preset	G92.1	S	S	Display unit	10.4" Color LCD	S	S
Direct drawing dimension programming		S	S				

Hwacheon Global Network

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HWACHEON

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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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