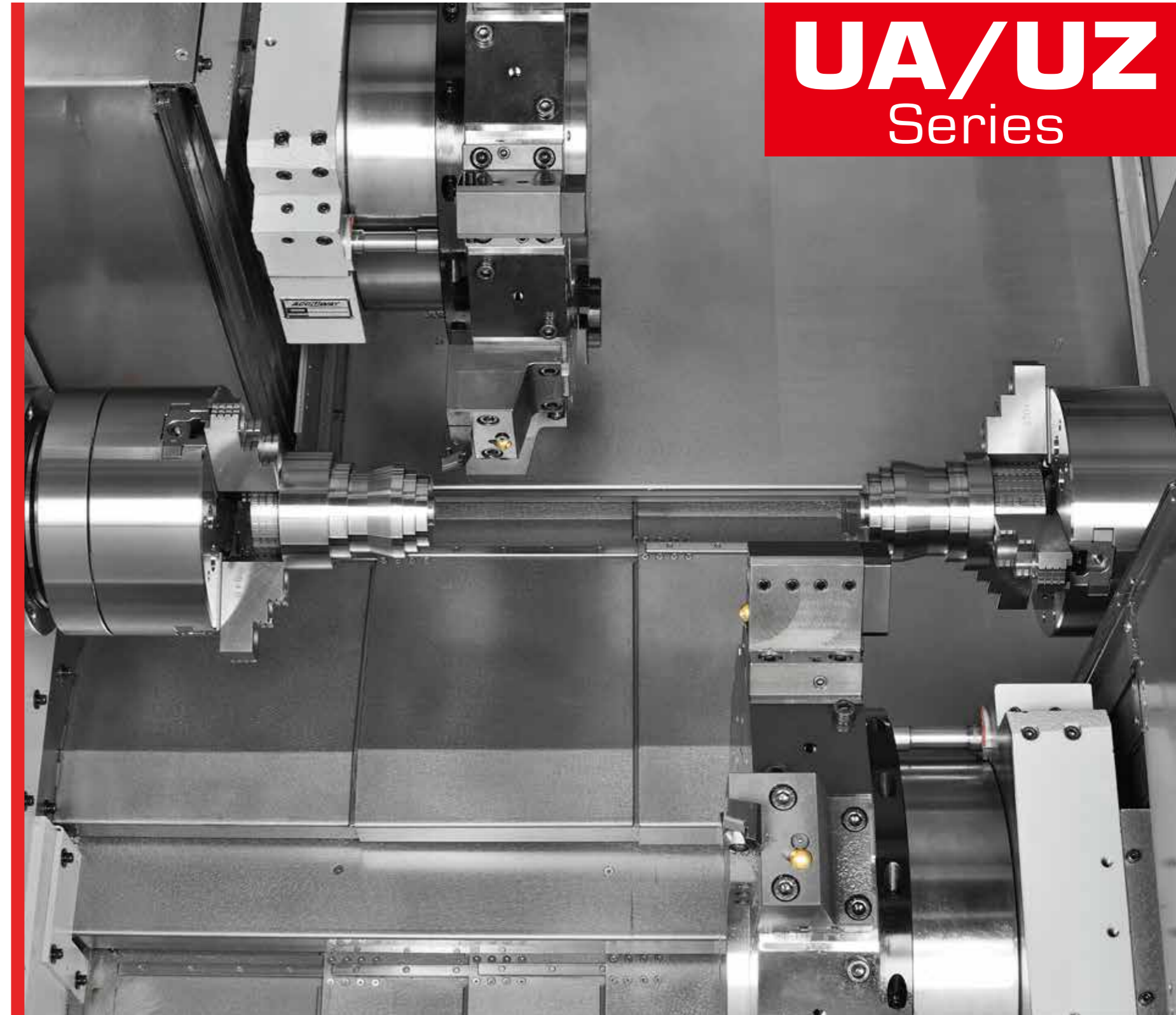




# Multi-axis Complex Turning-milling Center

**UA/UZ**  
Series



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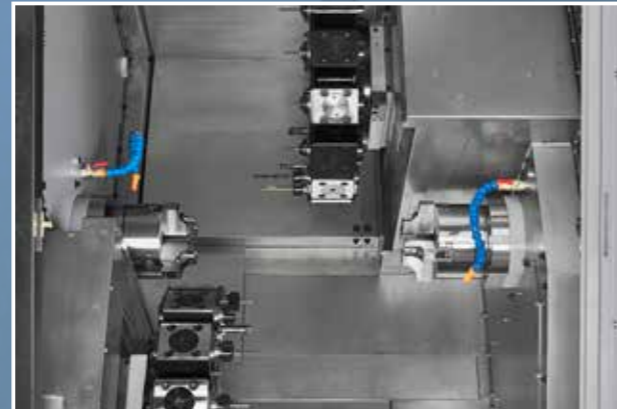
# UA/UZ Multi-axis Complex Turning-milling Centers

## Complex + Intelligent + Automation

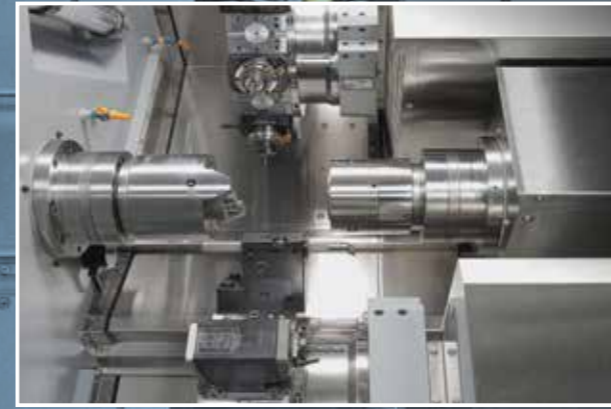
- Twin spindles, twin turrets, and multi-tools stations design.
- Upper and lower turrets perform multipath synchronous/composite turning-milling process to shorten cycle time.
- High-speed tool spindle design for power turret meet any complex shape workpiece machining.



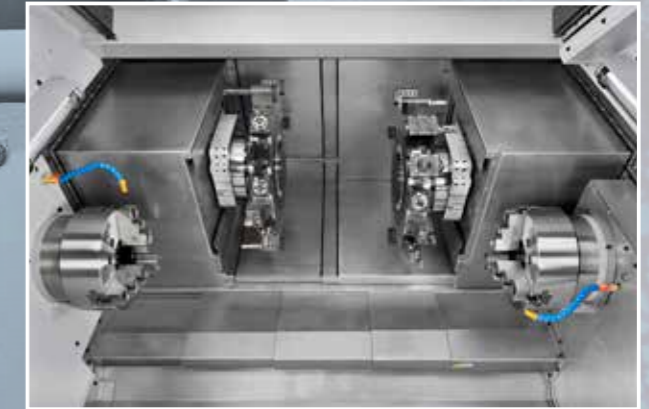
Opposite upper and lower turrets with a single Y-axis on the upper side



Opposite upper and lower turrets with twin Y-axis



Parallel upper and lower turrets with a single Y-axis on upper side



Opposite twin upper turrets



**UA-1500T2Y**



**UA-1500T2Y2**

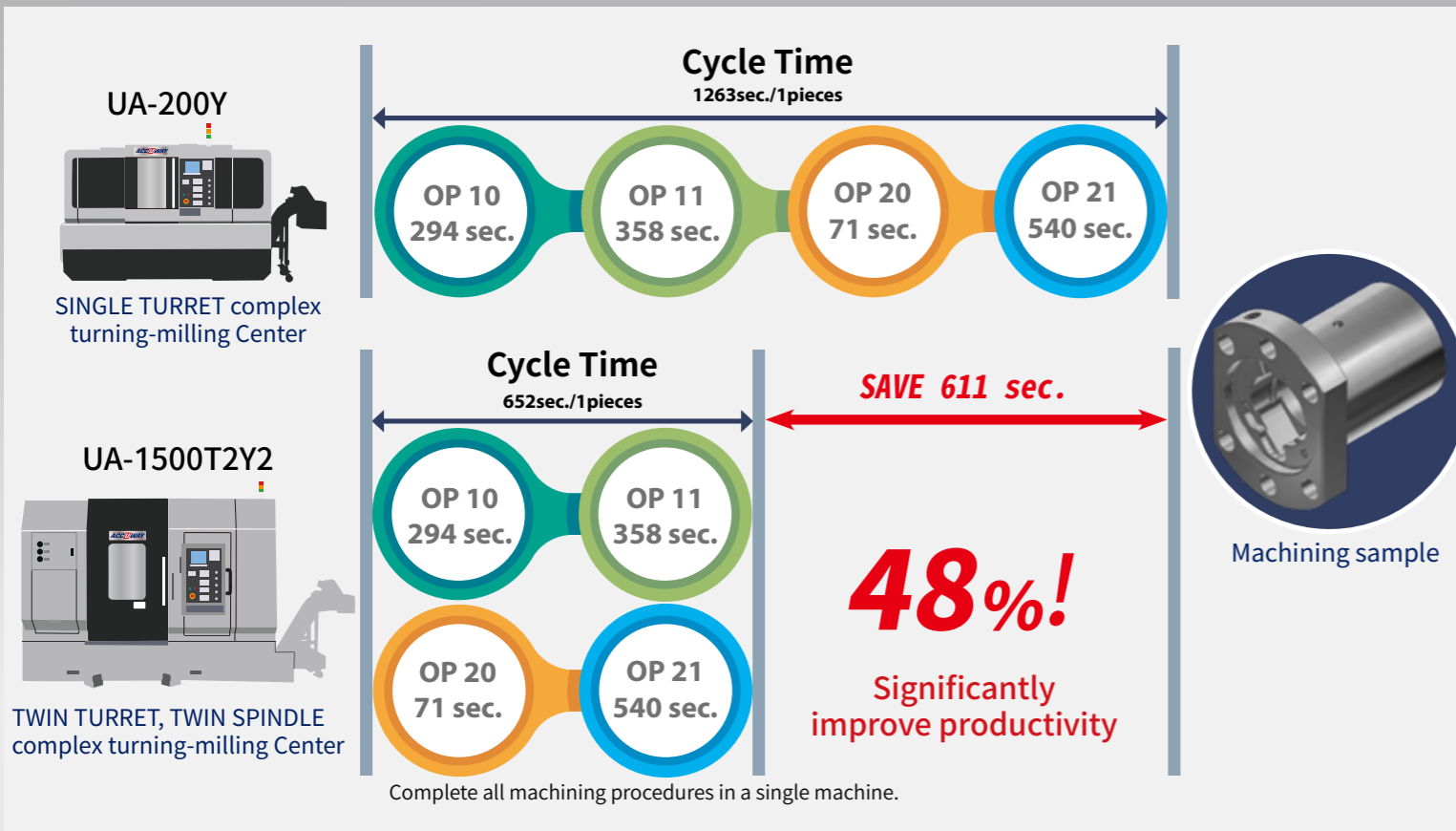


**UZ-2000T2Y**



**UA-2000T2M**

# Enhancing Efficiency and Achieving Higher Accuracy



- Advantages of UA/UZ series**  
(compared to general machining procedures)
- Avoid clamping errors from manually changing jobs
  - Save machine footprint
  - Reduce equipment cost
  - Reduce loading and unloading time
  - Increase productivity
  - Shorten delivery time

**Minimized Footprint**  
The processing capacity of each UA/UZ series is equivalent to the integration of two single-turret turning-milling machines, and the floor space is greatly reduced.

**SAVE 48%**

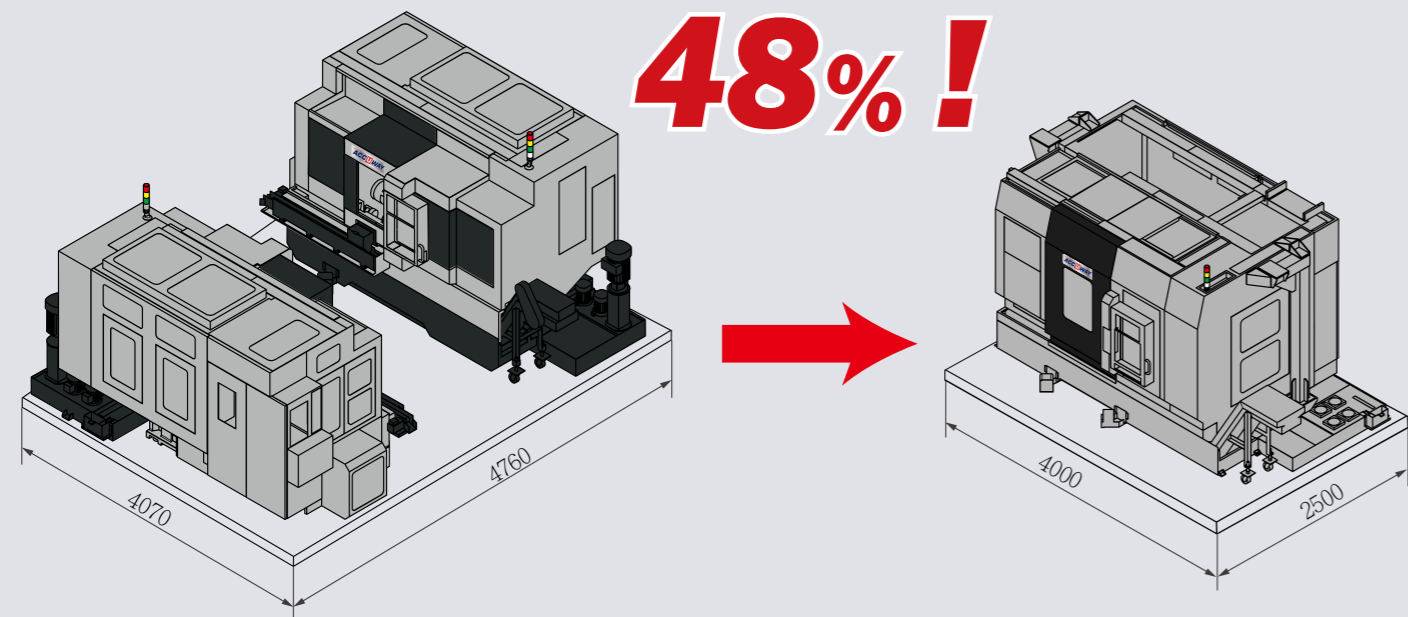
**Single/dual Y-axis control function**  
The Y-axis control function can meet machining requirements such as eccentric milling and drilling, so as to complete more complex processing tasks.

**±50mm**  
Y-axis Travel

**Sufficient turret capacity**  
Each turret can store up to 16 power tools maximum.

**32station**  
Turret 1 + Turret 2

## Save floor space

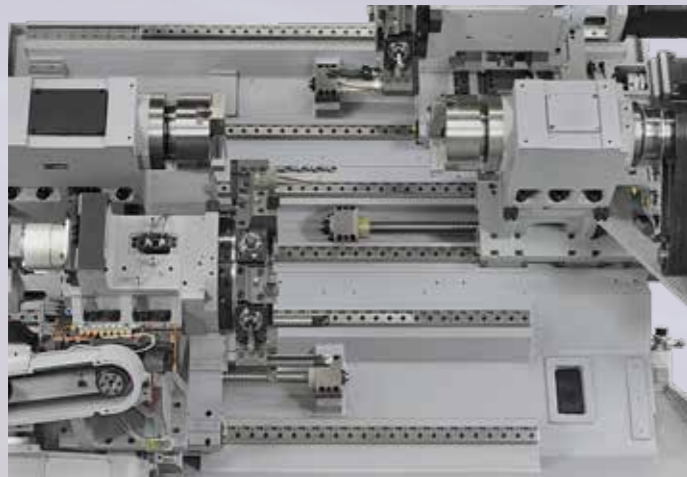
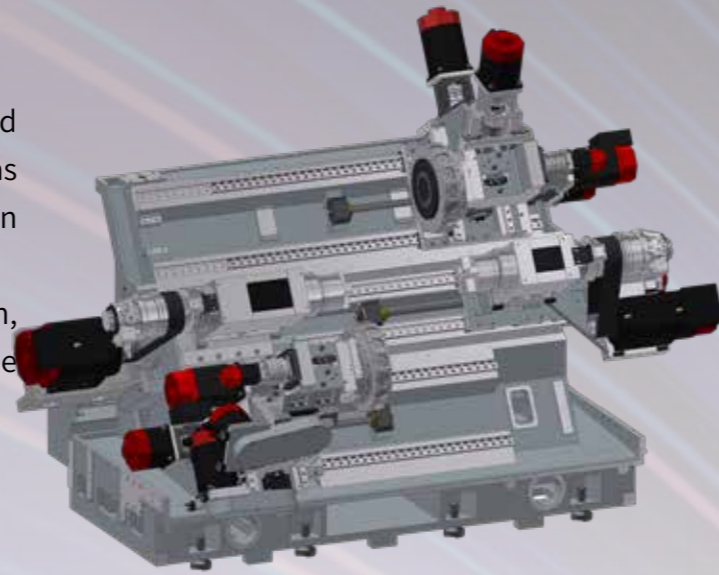


# Robust Structure Design

## High rigidity casting structure

The box-shaped one-piece bed has an optimized heavily and reinforced internal ribs design, which has strong stiffness to effectively absorb cutting vibration and maintain machining accuracy.

The casting material is made of Meehanite cast iron, which can preserve stable accuracy of the machine under long-term operation.

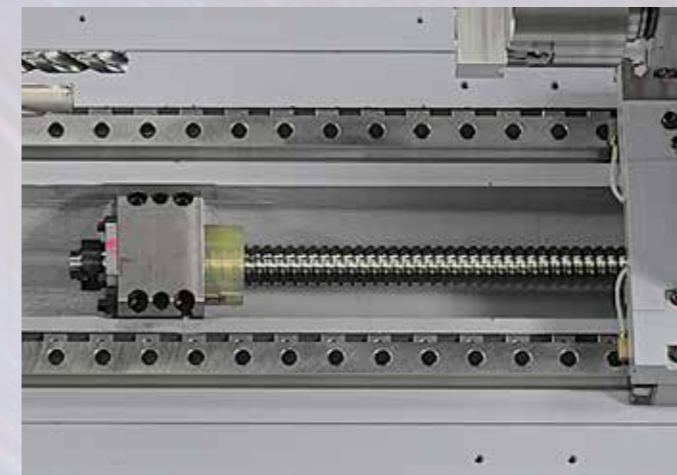


## Stable axis movement design

Having the large-span guideway design, whether during high-speed rapid feed movement or general machining movement, all axes can move simultaneously and smoothly without causing adverse resonance vibration.

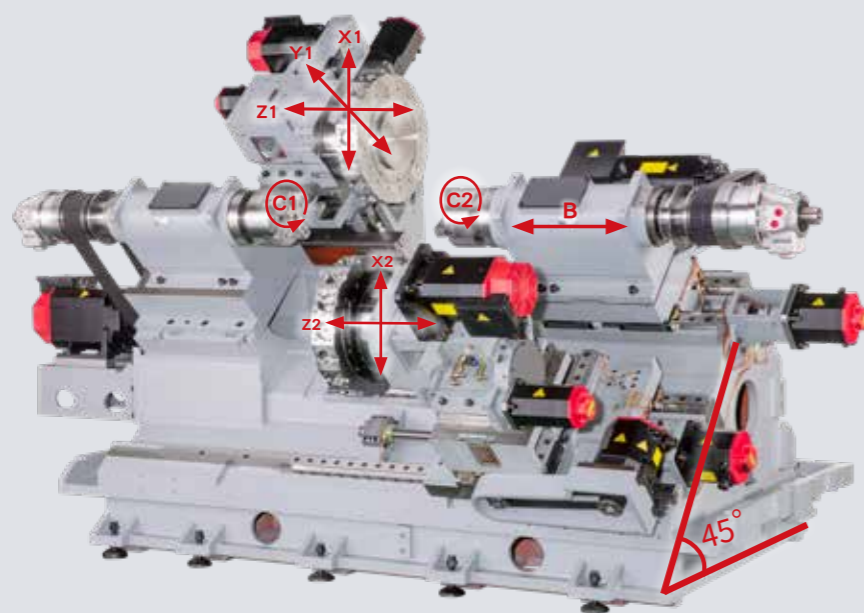
## High-precision linear guideway design

The linear guideway uses steel balls to support rolling motion contact between the block and the slide rail while reducing the coefficient of friction. Since the static friction force at startup is minimized, the equipment accuracy and mechanical performance can be greatly improved.

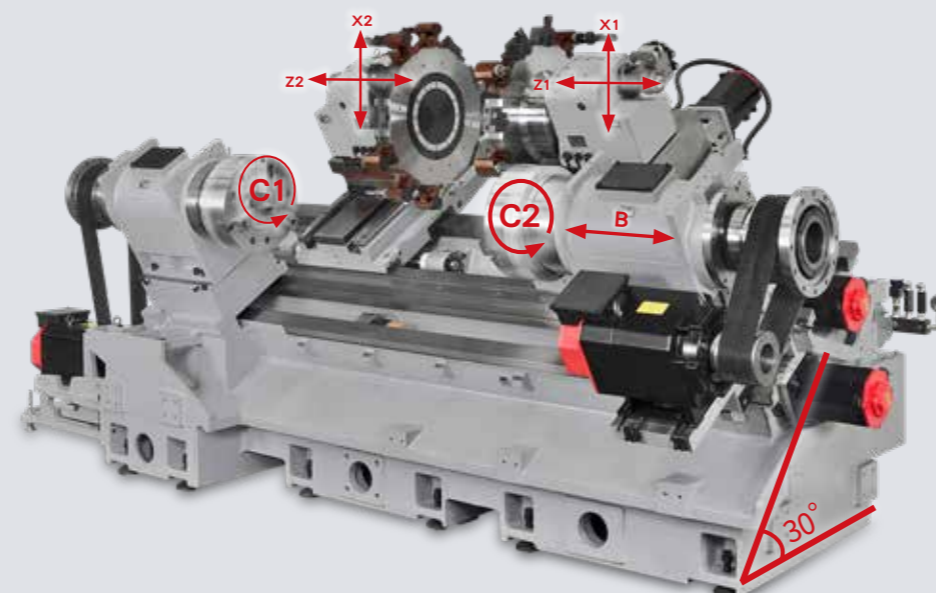


## Low backlash ballscrew drive mechanism

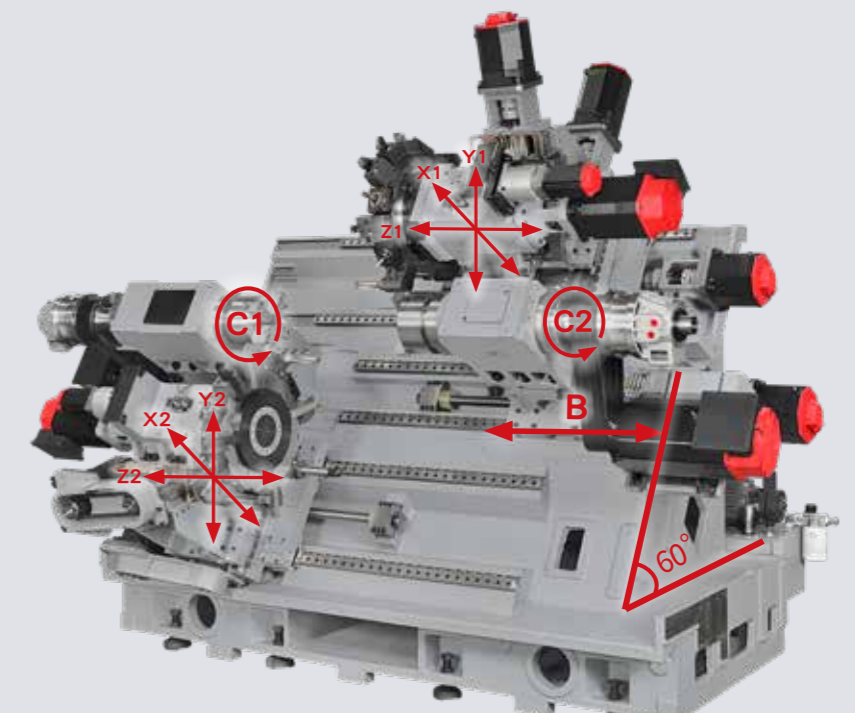
Pre-tensioned high-precision ballscrew and special heat suppression designs are used to effectively eliminate backlash and thermal elongation. The direct drive of the servo motor also reduces power losses and increases the positioning accuracy of the axial feed.



45° slant bed design



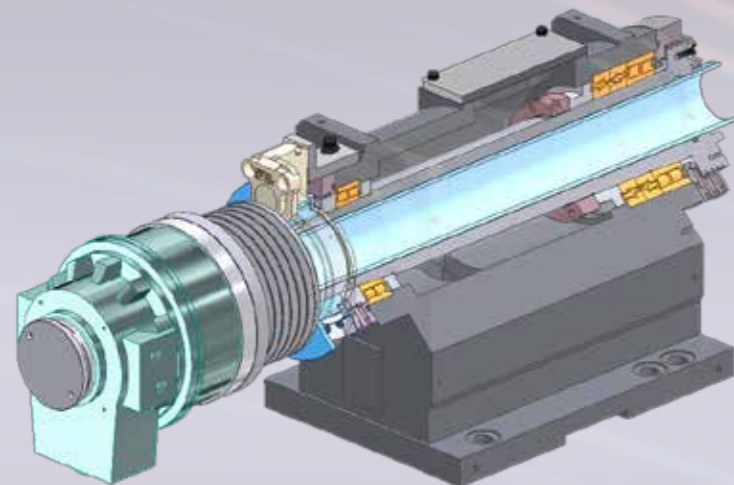
30° slant bed design



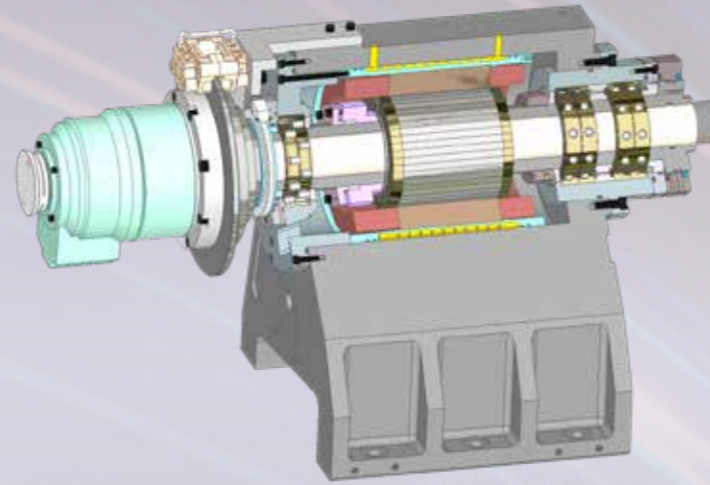
60° slant bed design

# Professional Indigenous Spindle Design

The precision belt-driven or built-in spindle is custom-designed according to machining requirements and has been assembled and rigorously tested in-house. The front and rear bearings of the spindle adopt large-diameter double-row roller bearings and a set of super precision self-alignment angular contact ball bearings, which provide unparalleled power, longterm durability, and superior processing capabilities. Each spindle is dynamically balanced to reduce vibration, thereby improving the machine's performance and overall machining quality.



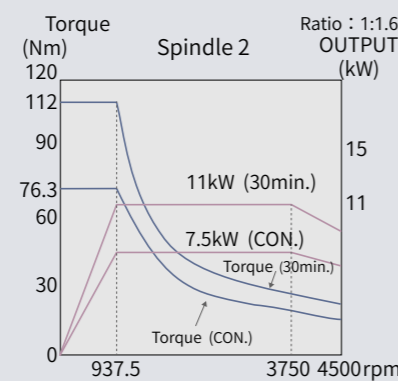
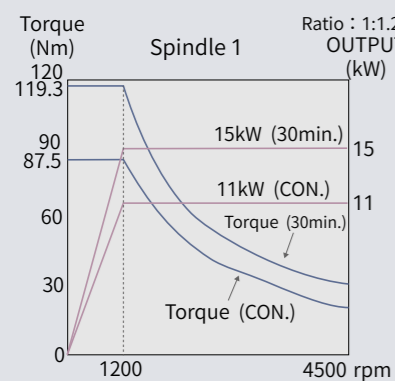
Belt-driven spindle



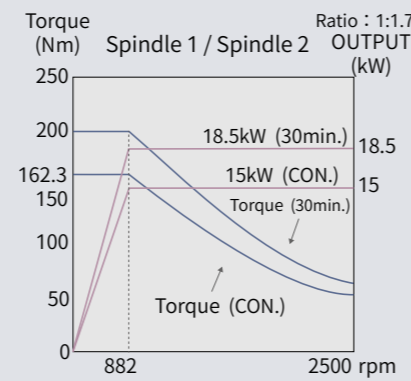
Built-in spindle

## Spindle Power Chart

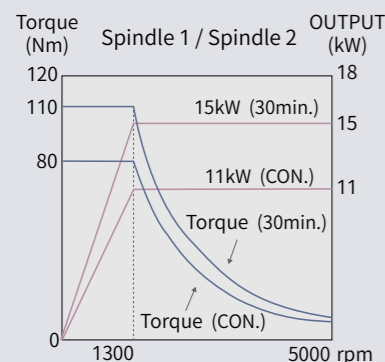
### UA-1500T2Y · UA-1500T2Y2



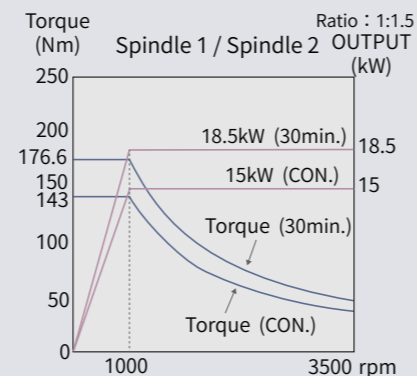
### UA-250 · UA-2000T2MB



### UZ-2000T2Y · UZ-2000T2M · UZ-2000T2MW



### UA-2000T2M

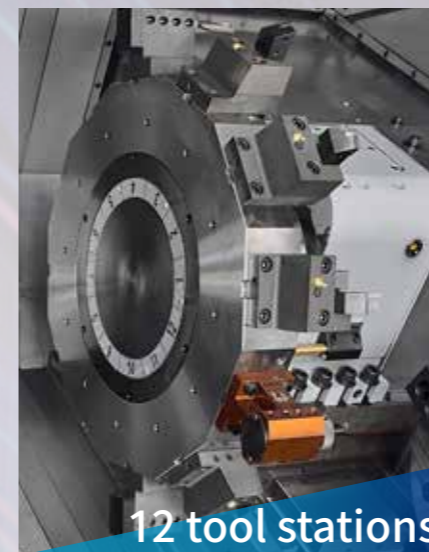


# High-Rigid Self-developed Power Turret

Independently develops and in-house manufactures BMT servo power turret, adopts high-precision 3-piece large-diameter curved tooth clutch, and drives the cutter head to rotate with a servo motor, which has the characteristics of short tool change time and high positioning accuracy.

Up to **32** driven tool holders can be installed

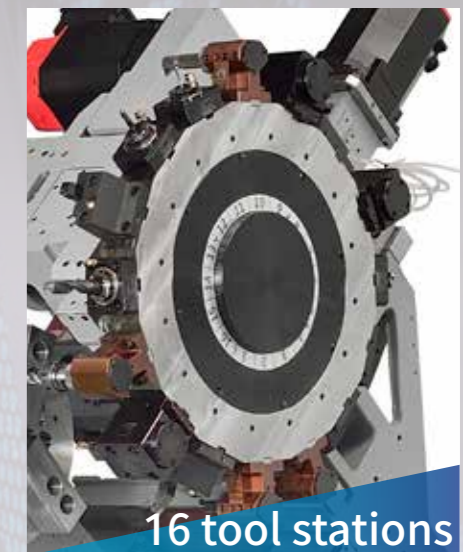
Turret 1  
16 tool stations  
+  
Turret 2  
16 tool stations



12 tool stations



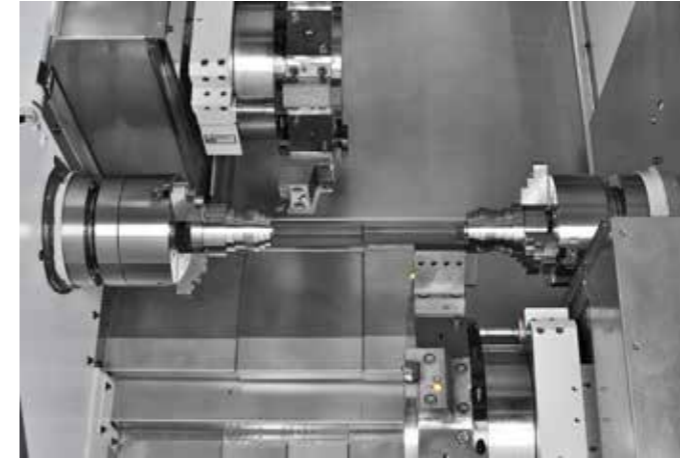
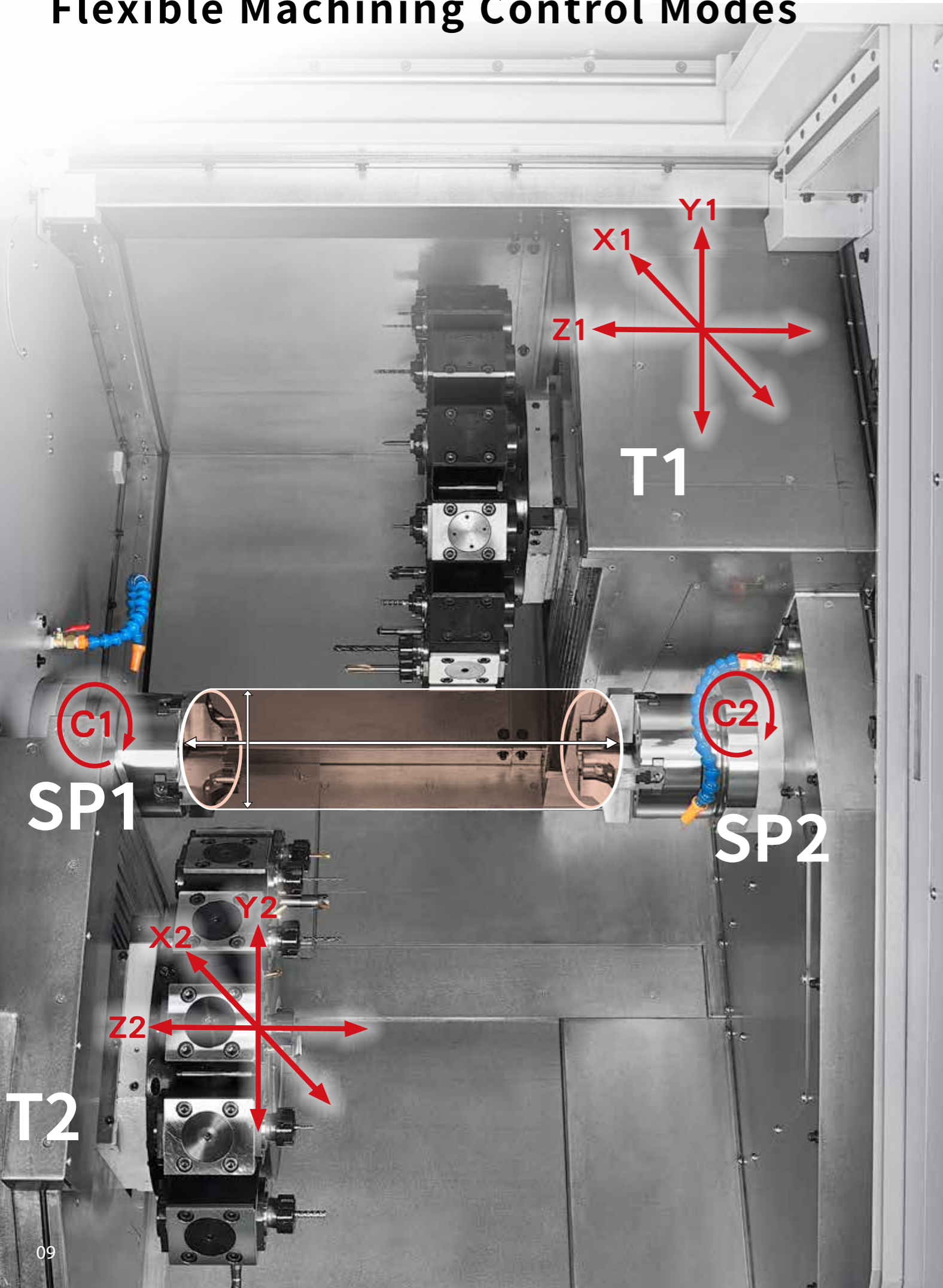
15 tool stations



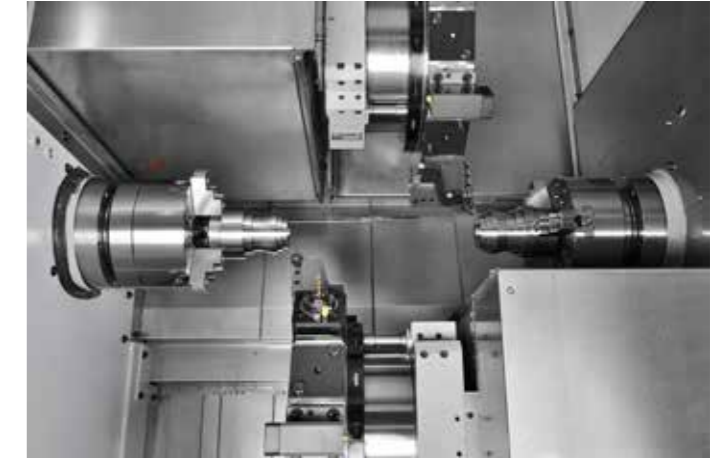
16 tool stations



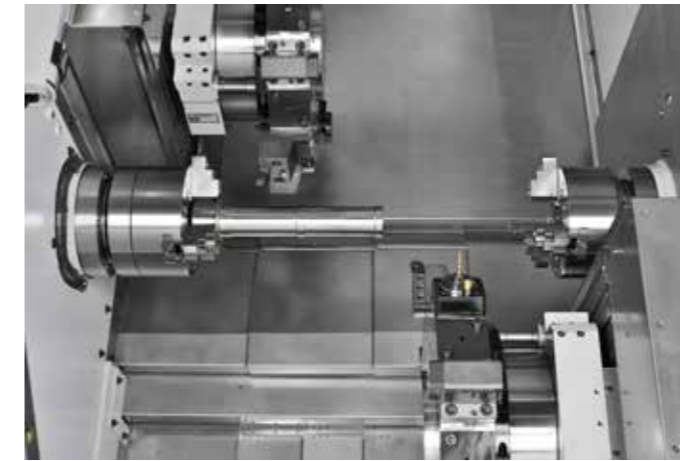
# Flexible Machining Control Modes



Independent machining control in each path



Twin path composite machining control



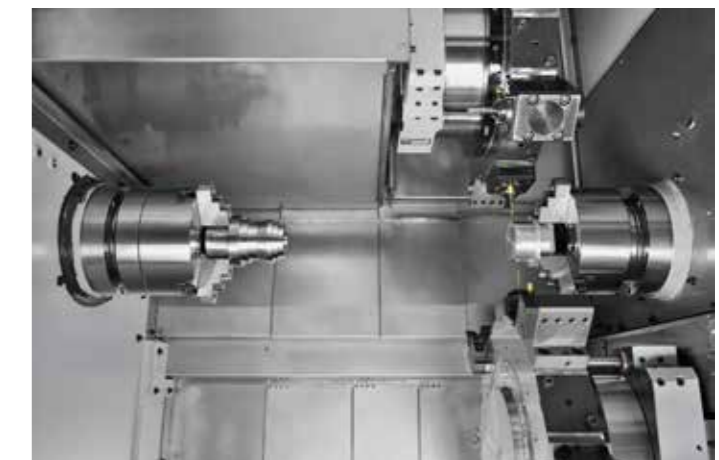
Twin path composite balance cutting control



Synchronous parts interchange control

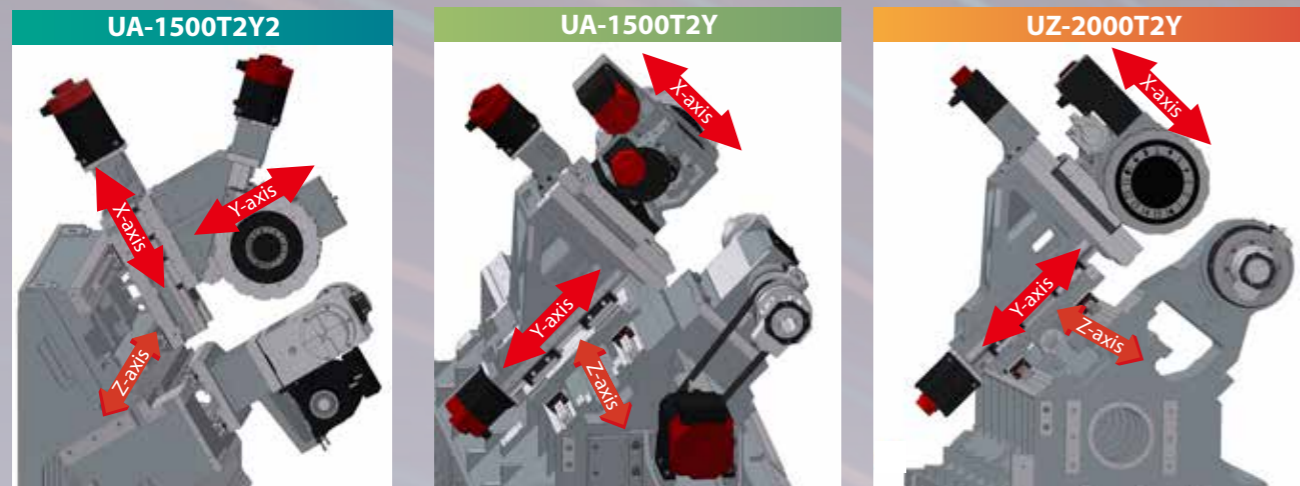


Twin path composite balance cutting control on SP1



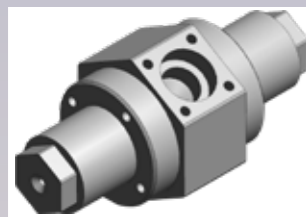
Twin path composite balance cutting control on SP2

# Y-axis Machining Capability



## Keyway milling

Applying Y-axis machining can accurately control the width of the keyway even when the tool is worn out. In addition, because the turning and milling of the keyway are completed in the same cycle during shaft machining, the excellent geometric tolerance of the keyway symmetry can be precisely maintained.

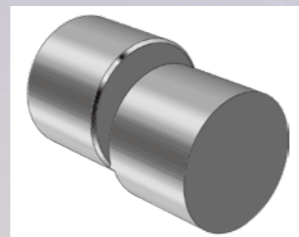


## Asymmetric/eccentric hole machining

The simple C-axis can only process symmetric holes when drilling and tapping in both radial and axial directions, while the Y-axis turning center can perform asymmetric hole machining by creating an offset in the Y-axis direction.

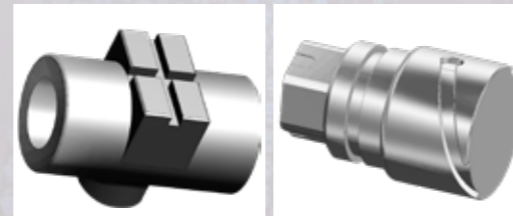
## Cam profile face milling

Applying the Y-axis function can perform 3D simultaneous machining of end face cams or cylindrical cam contours.



## Radial face, profile, and pocket machining

Various drilling, milling, thread milling, etc. can be performed on the radial cylindrical surface of the workpiece.



## Thread milling

The Y-axis turning-milling center is equipped with a controller function to perform milling internal and external threads on end faces and radial surfaces.



## 3D contour engraving and milling

Applying simultaneous compound servo motion control of X/Y/Z linear axes plus C-axis indexing synchronous movement, it can perform engraving and milling of 3D geometric contours.

# Optional Accessories

## Gantry external loading/unloading system

Integrating the external gantry-type loader system and the work stoker for storing various shapes of raw materials and finished products, perform continuous loading and unloading operations, greatly reducing manpower dependence and increasing production efficiency and output value.



## Built-in unloading system

The built-in unloader system picks up the workpiece after completing each work cycle and sends it directly to the workpiece conveyor and collected it to the outside stoker without opening the door. If cooperates with the bar feeder, it can achieve unmanned automatic production.



## Conveyor for finished parts

The finished product conveyor is placed inside the machine, which is both convenient and safe and can send the workpiece to the collection box outside the machine to reduce labor cost.



## Tool setter

Use a manual or automatic tool setter arm to detect tool wear and feedback compensation amount to the controller to maintain the critical dimensions of the workpiece within the tolerance range, reduce defective products, maintain stable machining quality, increase efficiency, and improve yield rate.



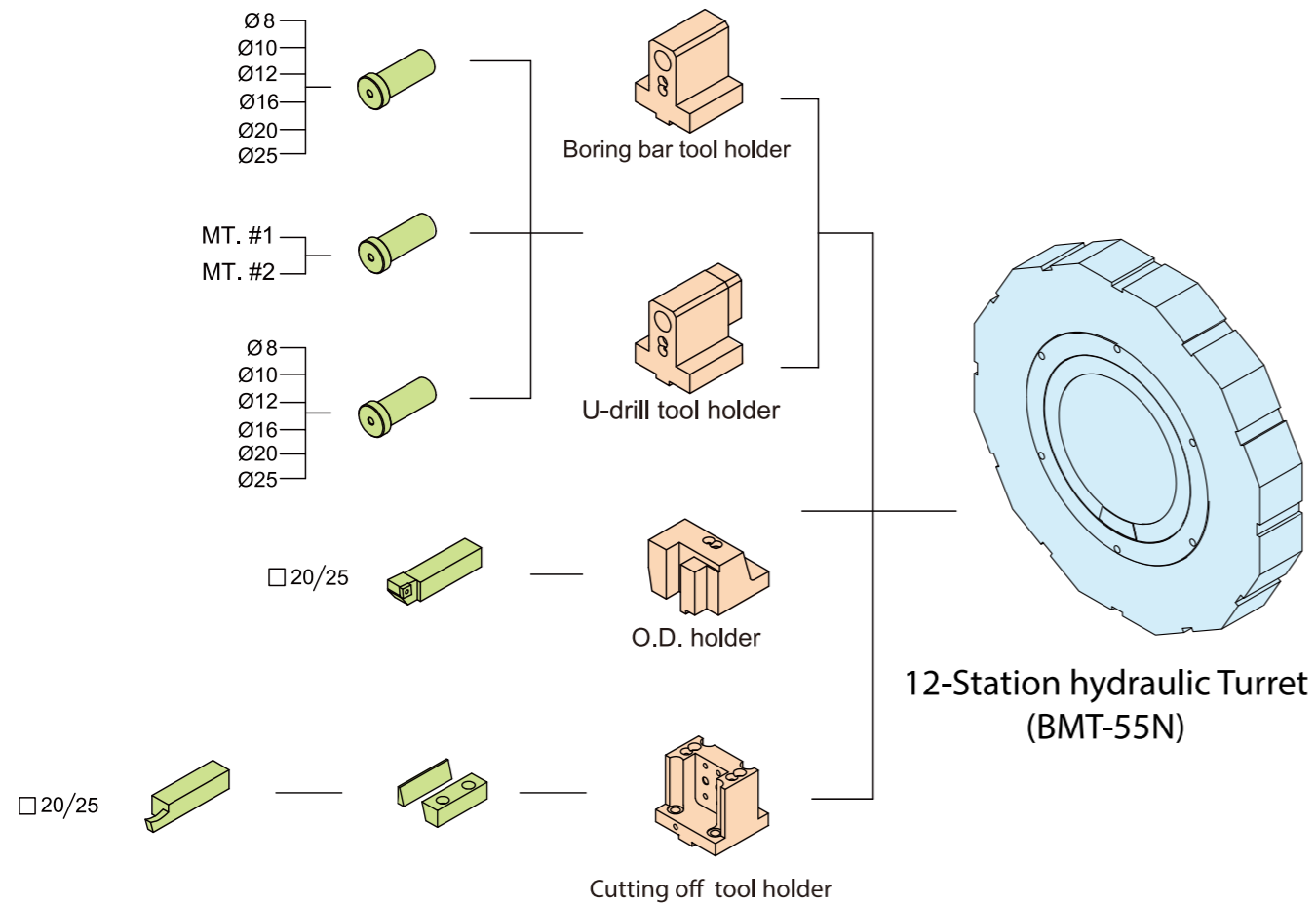
## Bar feeder

Through the programming of machining cycle, long raw material bars are automatically fed into the spindle, which can realize the continuous operation mode without the operator's intervention for a long period, increase the production capacity and reduce the labor cost.

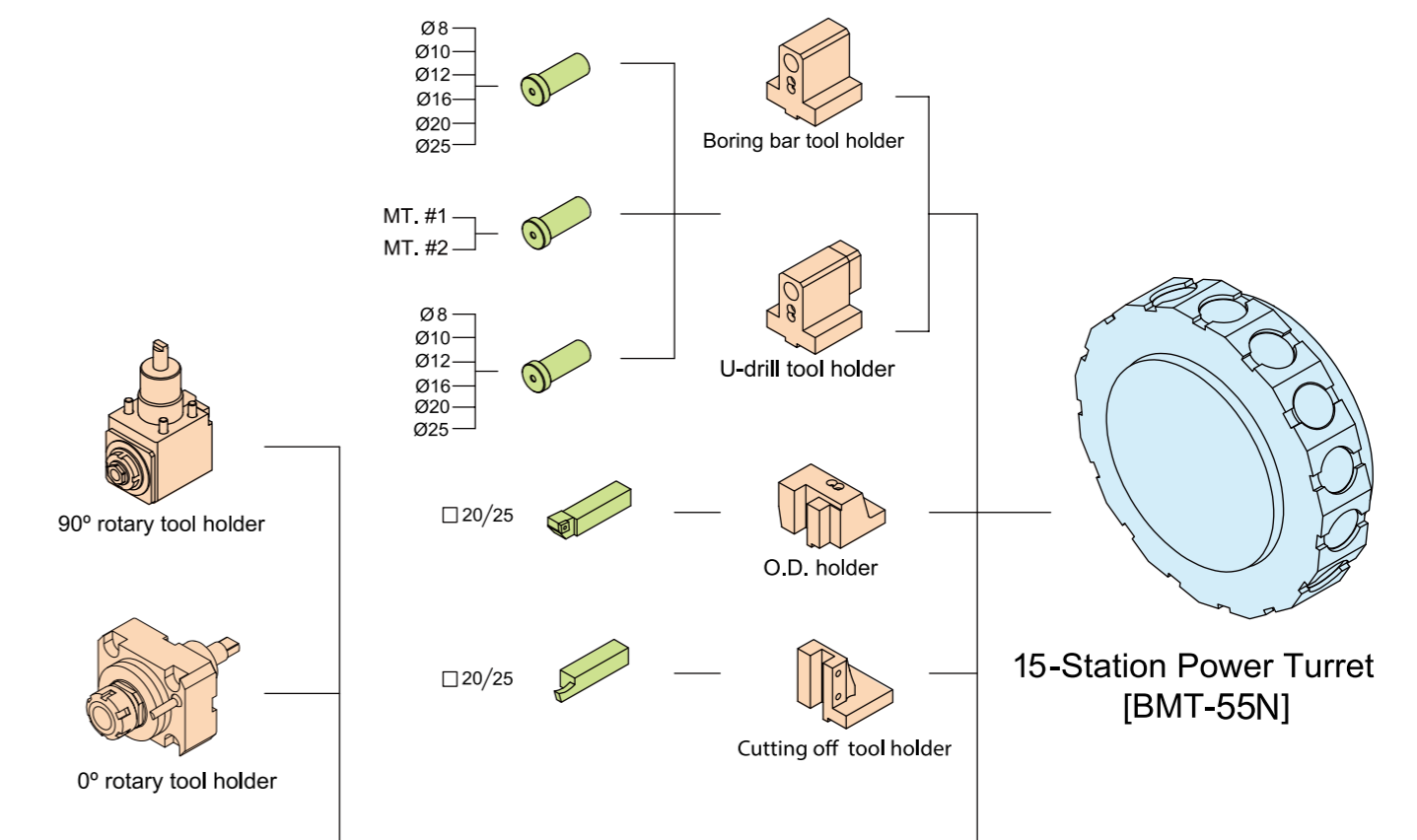


# Tooling System

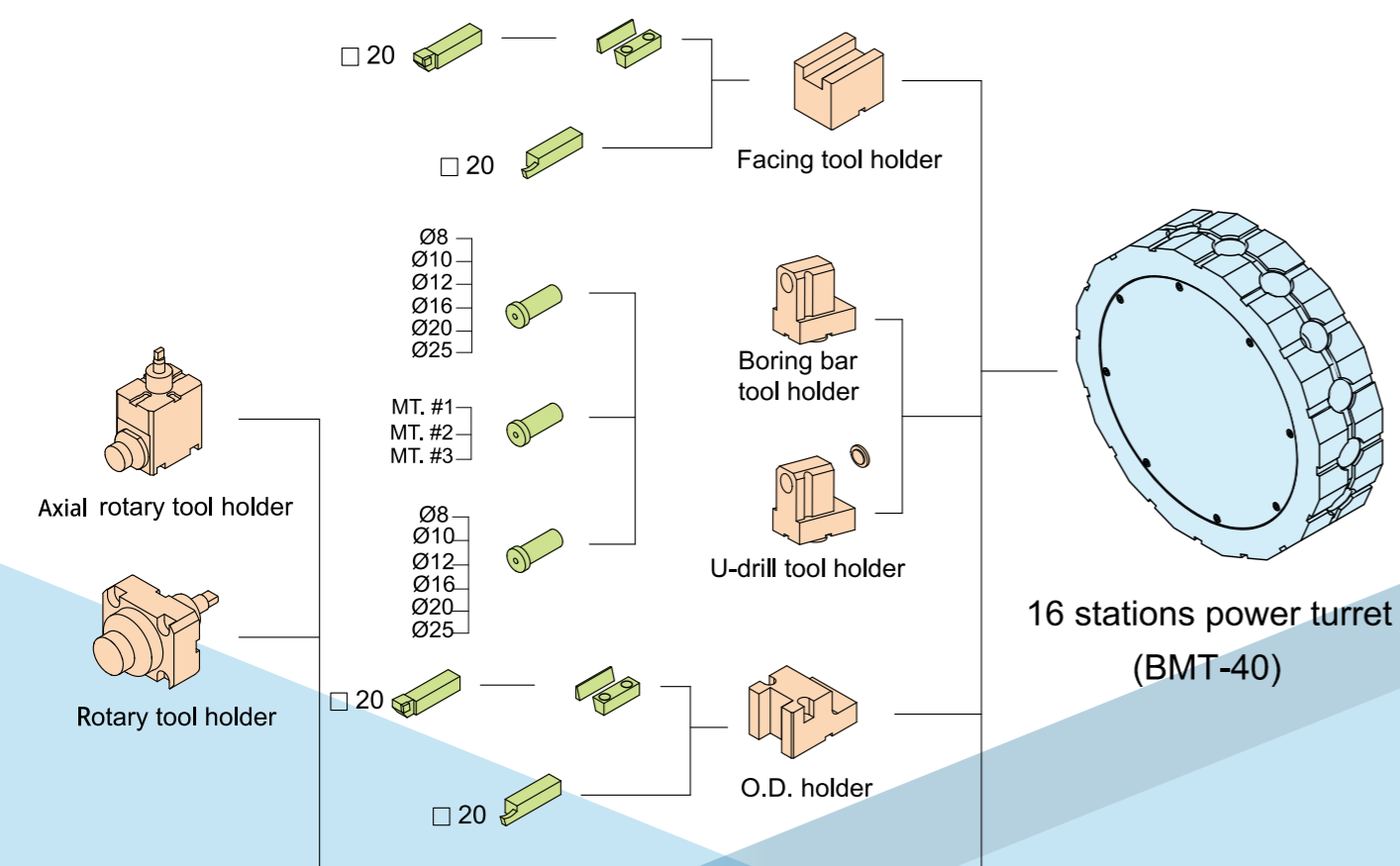
## UA-250



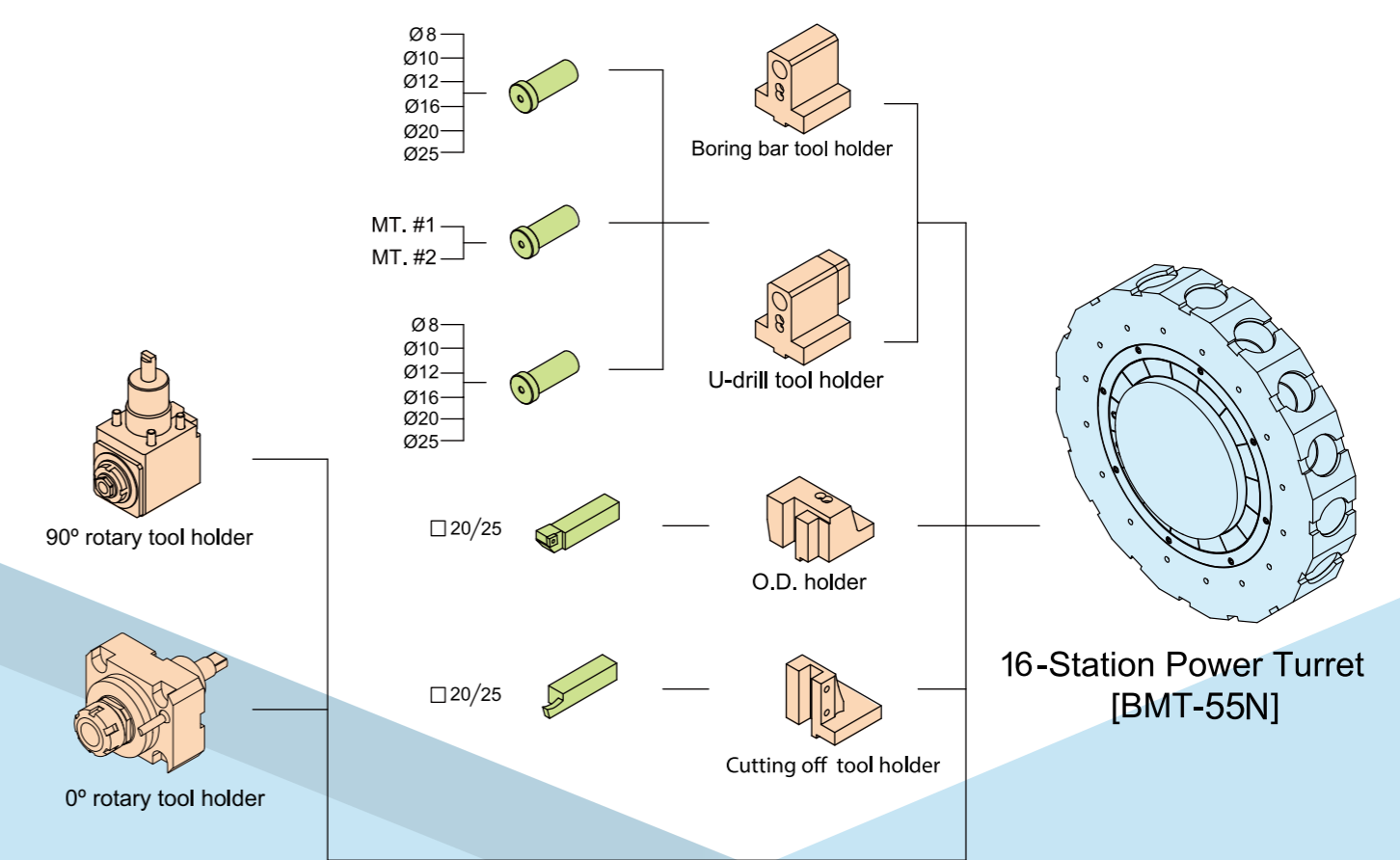
## UA-1500T2Y2



## UZ-2000T2M/T2MW/T2Y



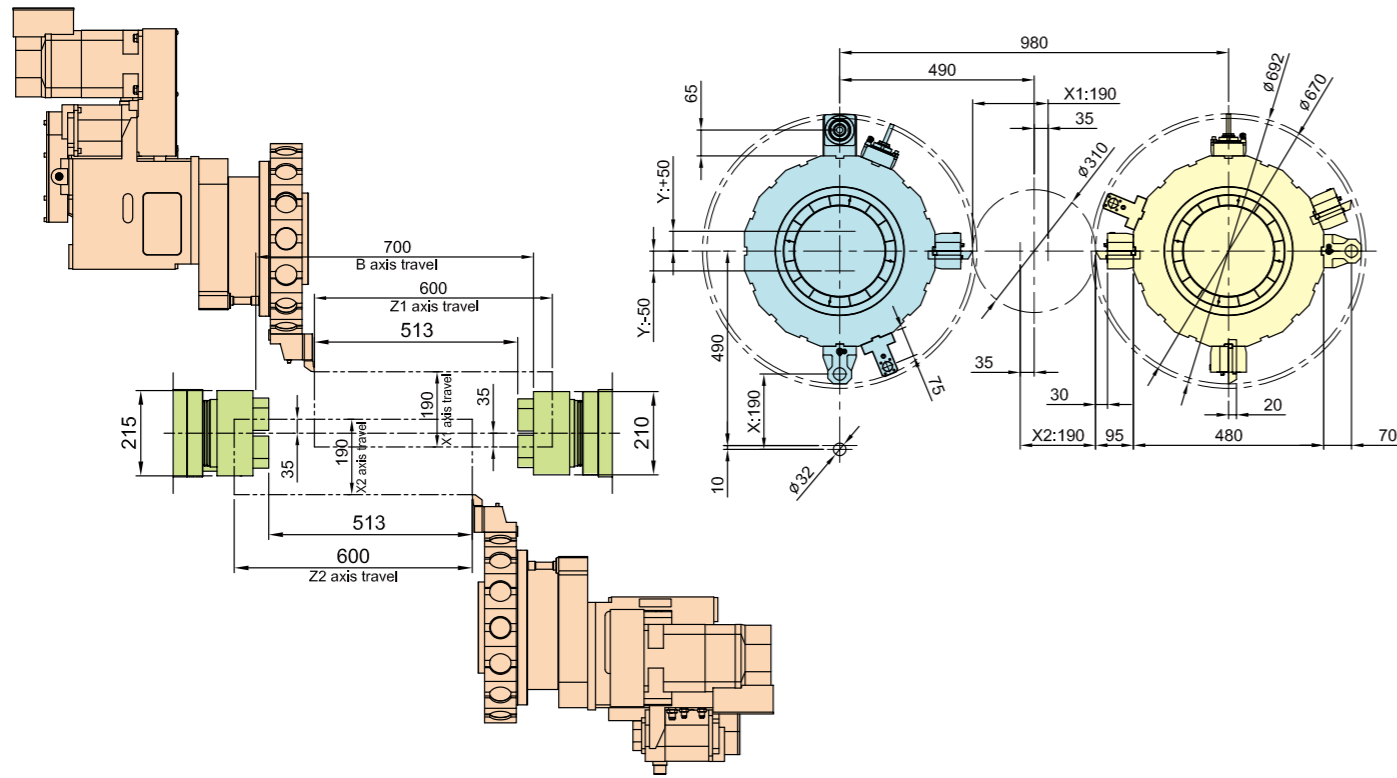
## UA-1500T2Y、UA-2000T2M、UA-2000T2MB



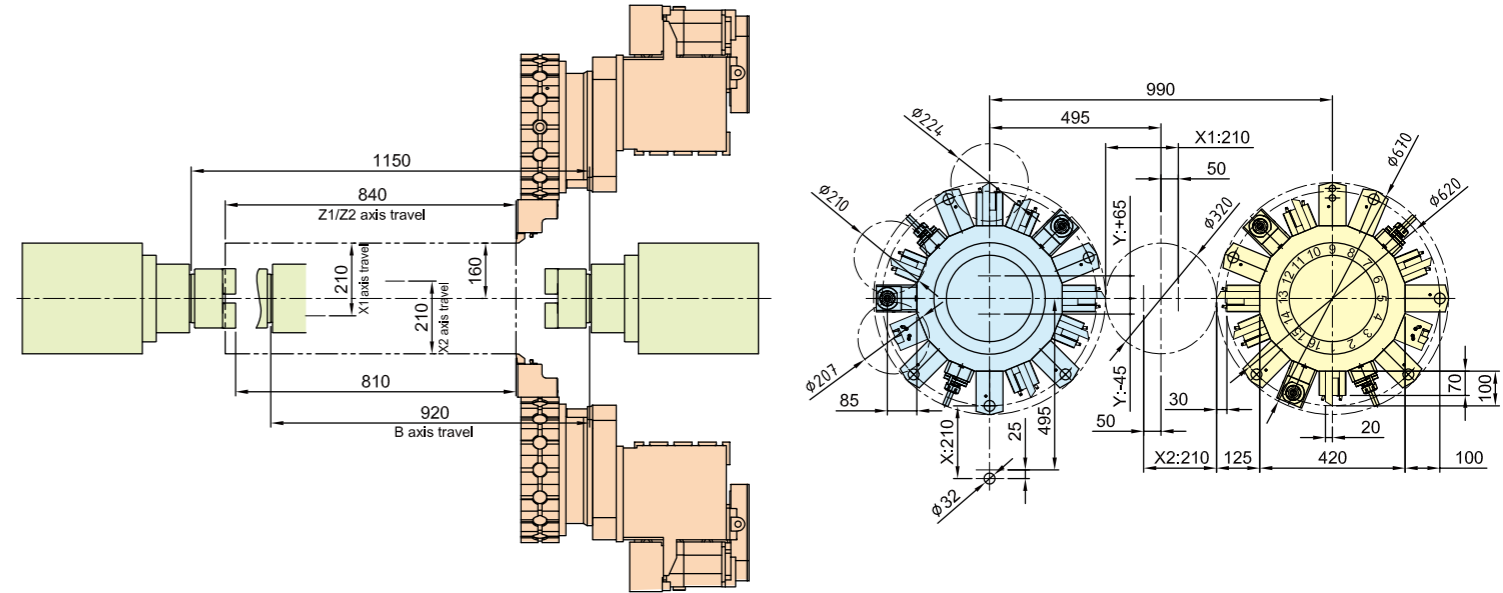


# Tool Interference Diagrams

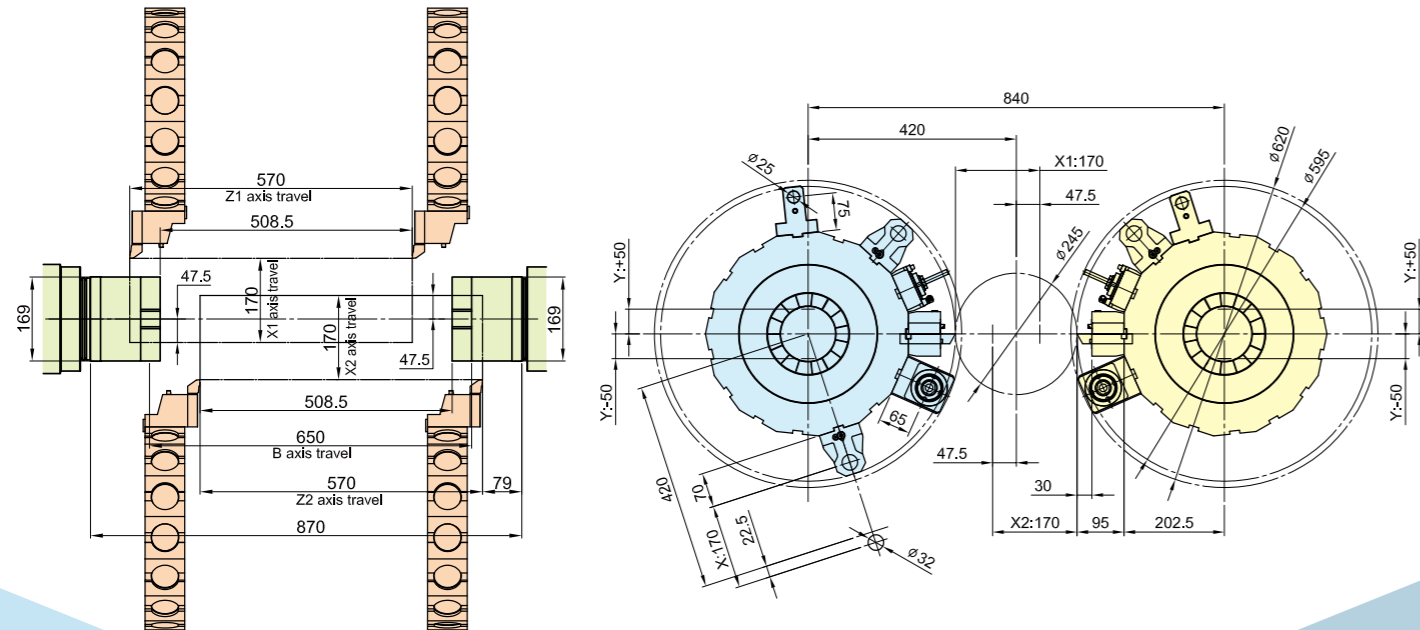
■ UA-1500T2Y



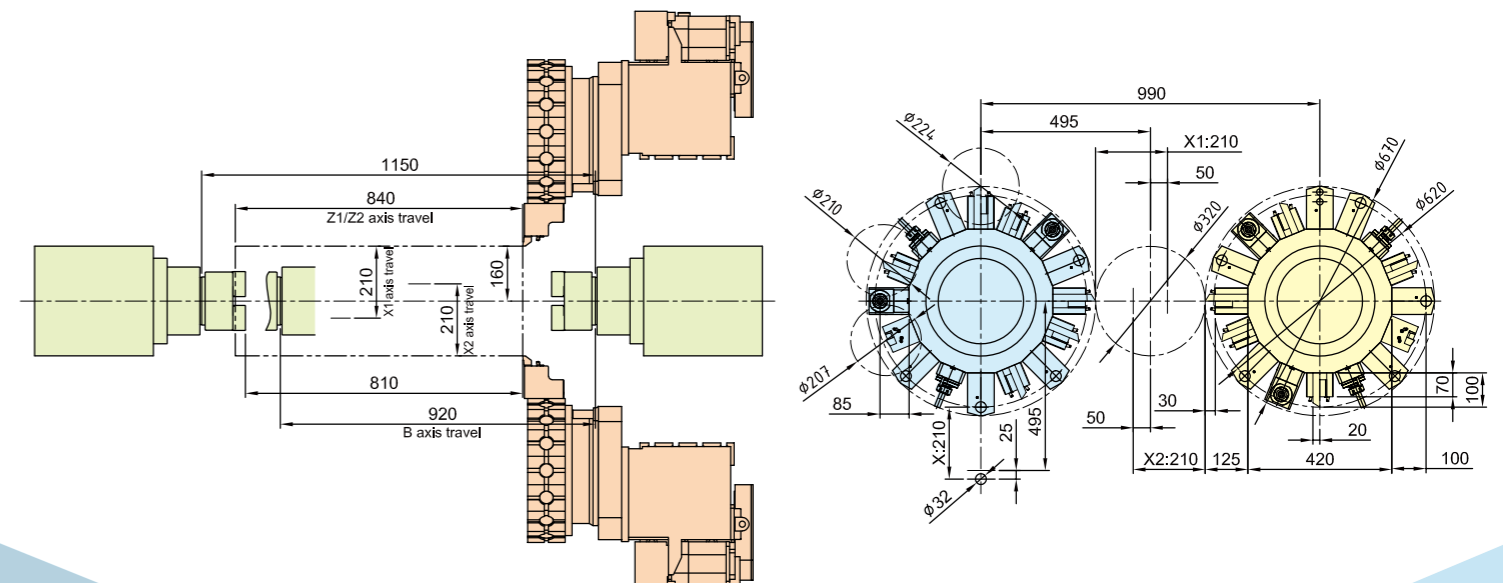
■ UZ-2000T2Y



■ UA-1500T2Y2

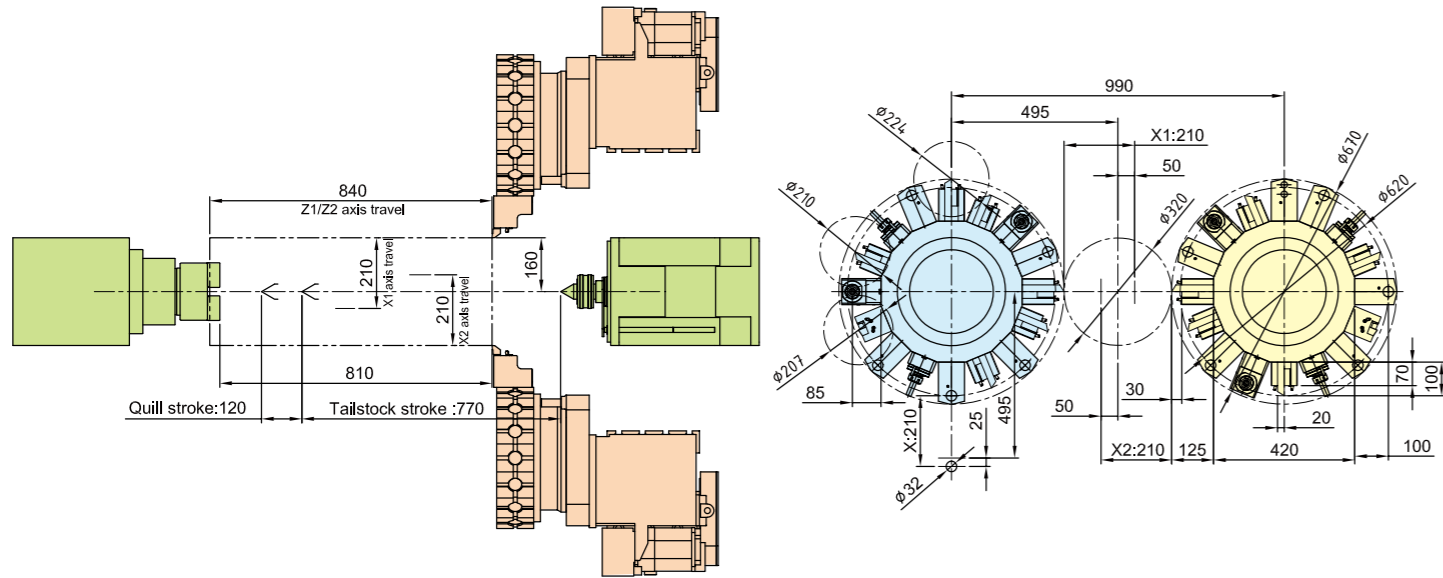


■ UZ-2000T2M

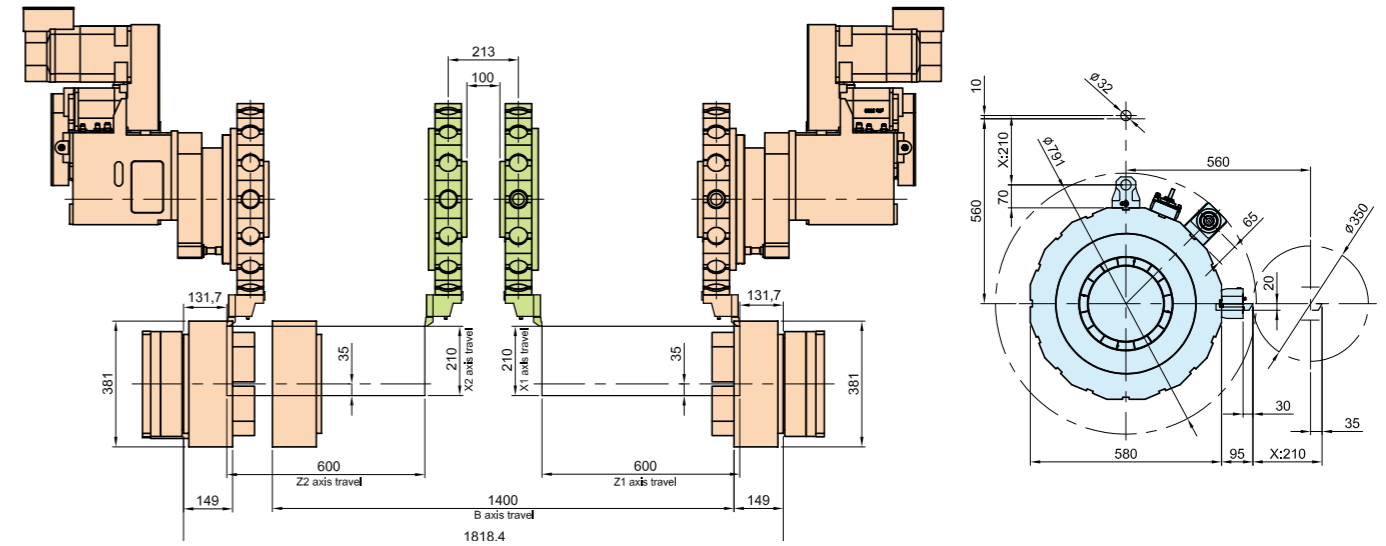


# Tool Interference Diagrams

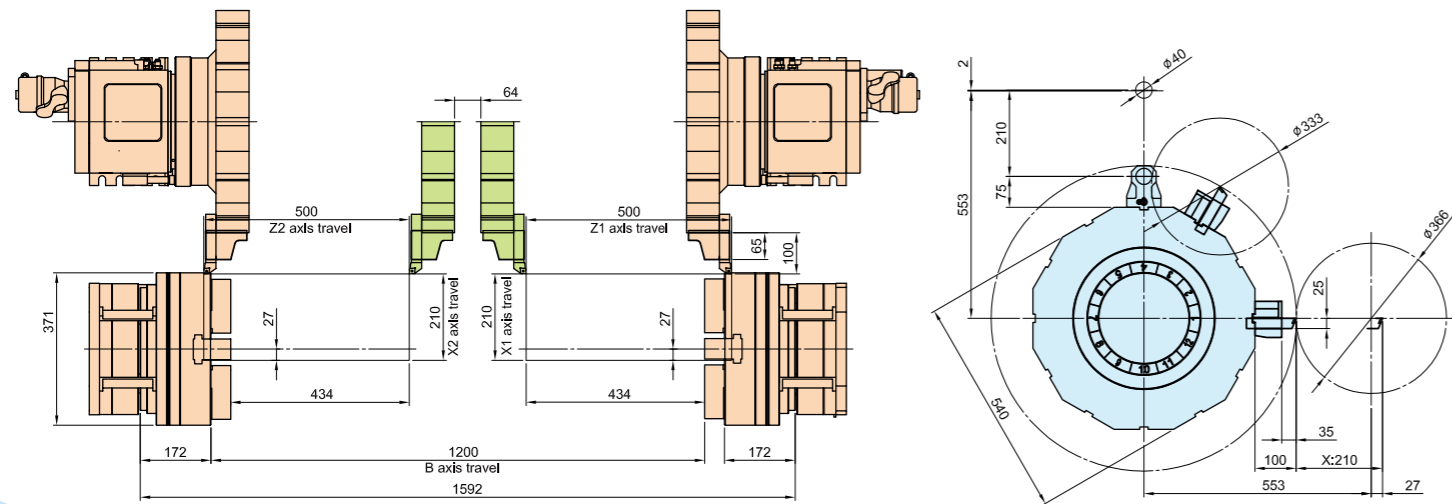
## UZ-2000T2MW



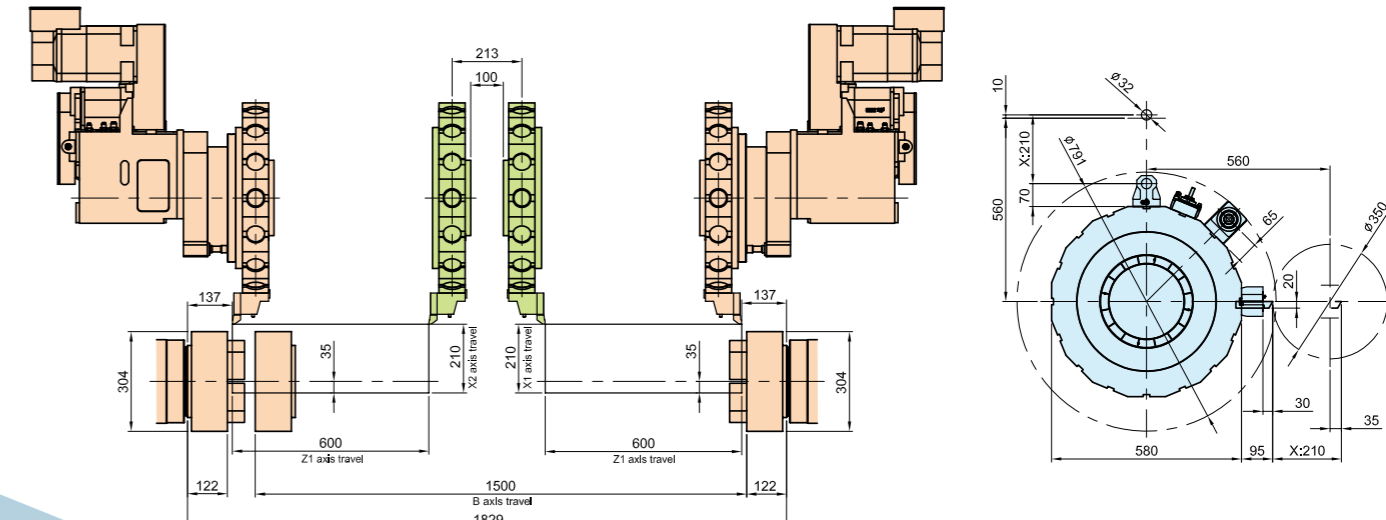
## UA-2000T2MB



## UA-250



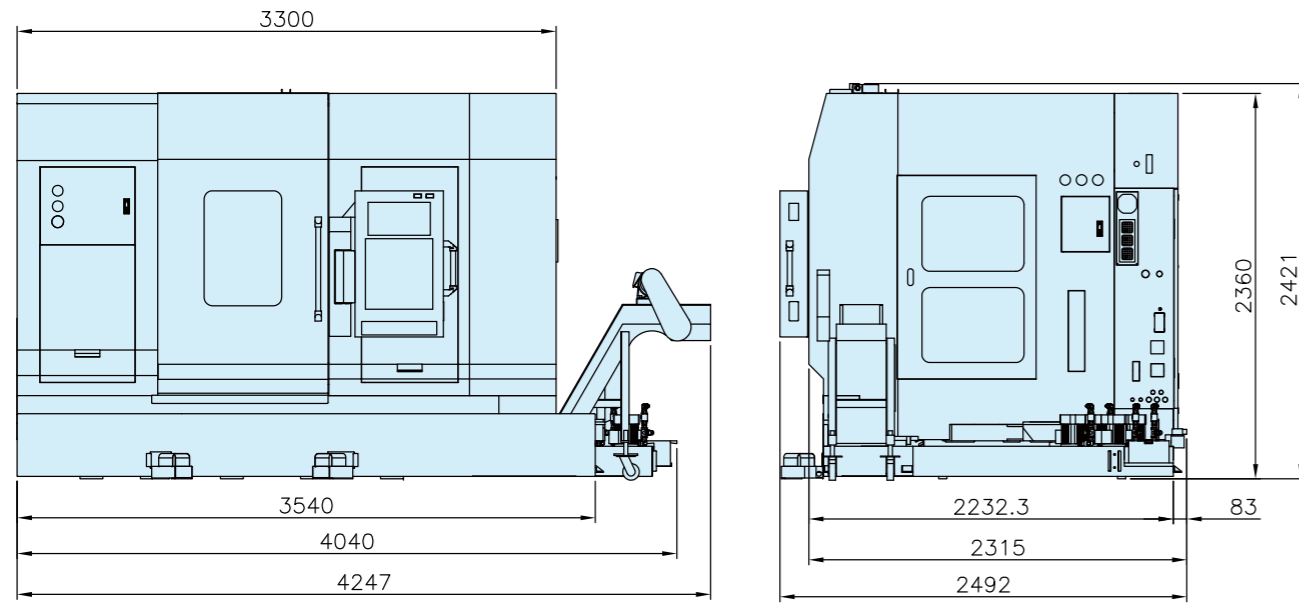
## UA-2000T2M



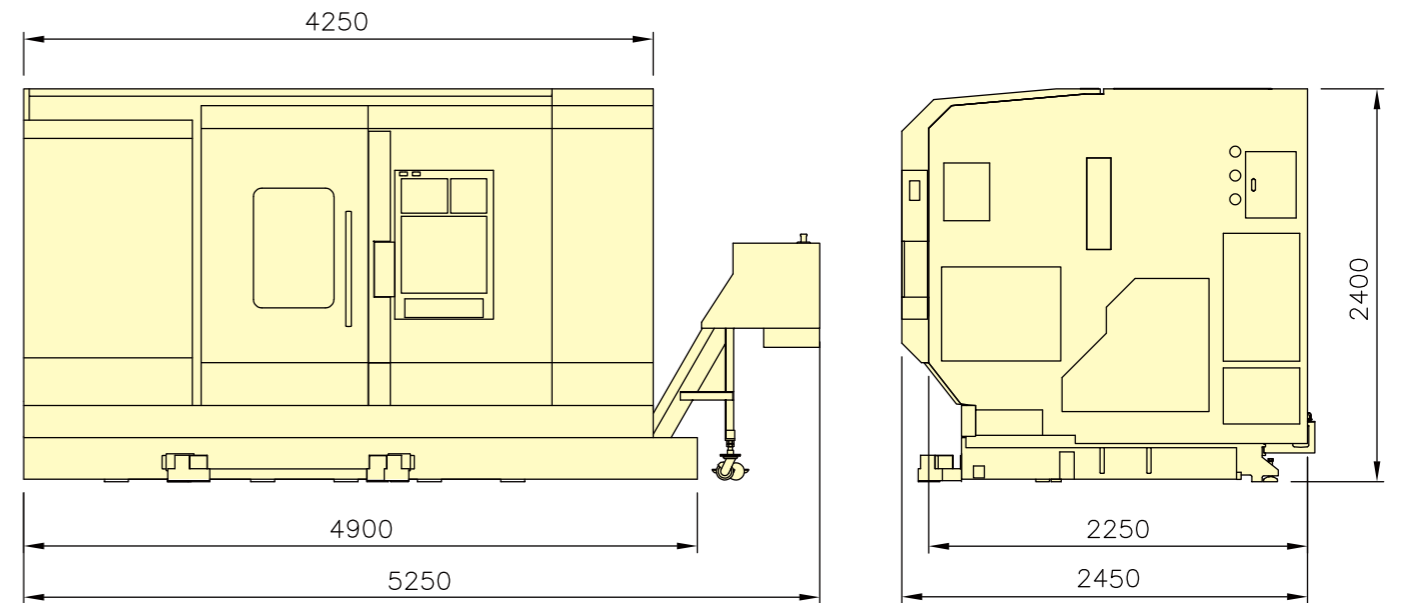
# Machine Dimensions

Unit: mm

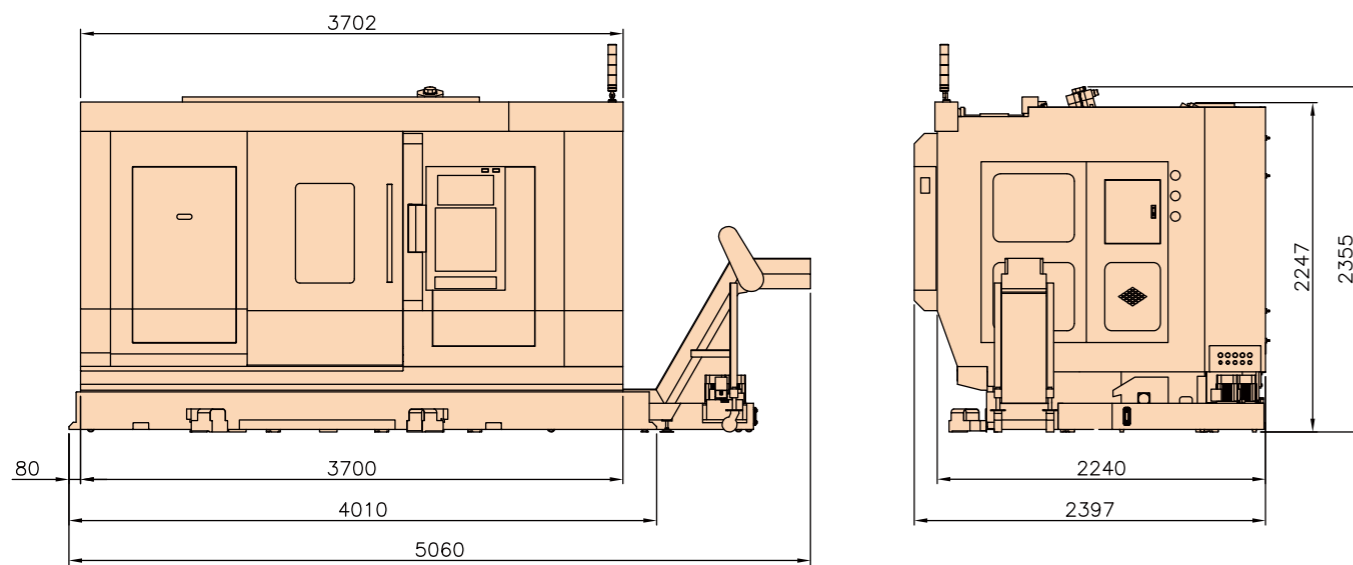
## ■ UA-1500T2Y



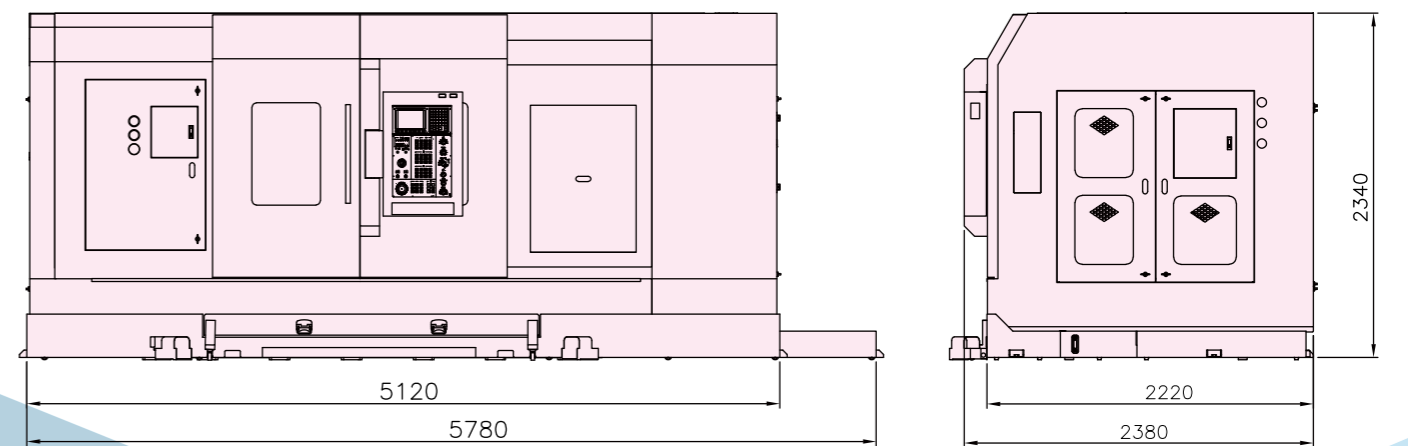
## ■ UZ-2000T2M、T2MW、T2Y



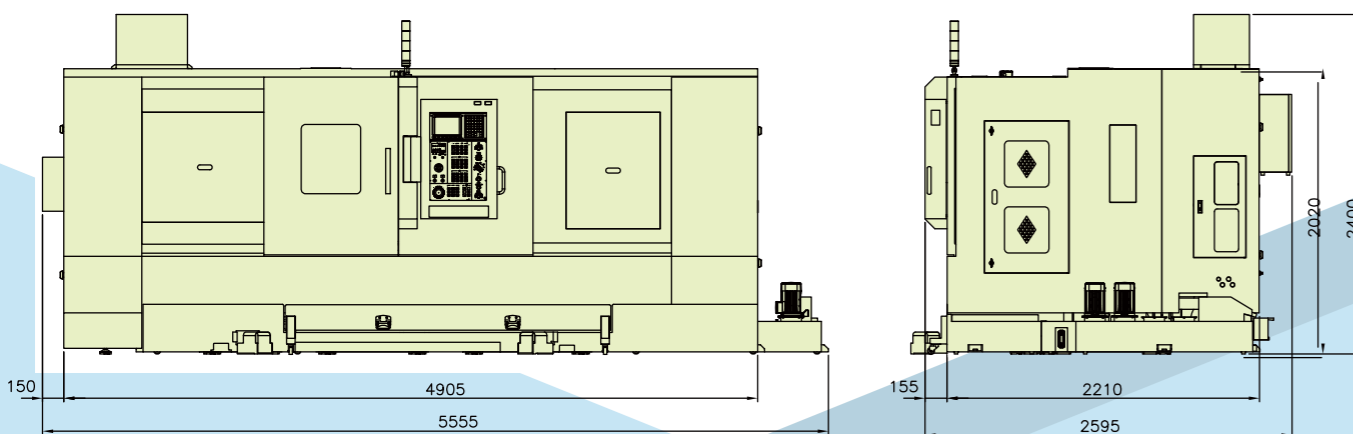
## ■ UA-1500T2Y2



## ■ UA-2000T2M、UA-2000T2MB



## ■ UA-250



# Specifications

Item / Model		UA-1500T2Y	UA-1500T2Y2	UA-2000T2M	UA-2000T2MB
Controller		FANUC Oi-T			
<b>CAPACITY</b>					
Swing Over Bed	mm	660	460	660	
Swing Over Saddle	mm	620	400	620	
Max. Turning Diameter	mm	300	200	340	
Max. Turning Length	mm	480	500	510	440
Bed Slant Angle	degree	45	60	45	
Guideway Type		Linear + Box			
<b>SPINDLE 1</b>					
Spindle Nose Taper	ASA	A2-6		A2-8	A2-11
Spindle Drive Type		Belt			
Chuck Diameter	inch	6 (8)		10(12)	15
Spindle Speed	rpm	4500		3500(2500)	2500
Bar Capacity	mm	52		75	105
<b>SPINDLE 2</b>					
Spindle Nose Taper	ASA	A2-6		A2-8	A2-11
Spindle Drive Type		Belt			
Chuck Diameter	inch	6 (8)		10(12)	15
Spindle Speed	rpm	4500		3500(2500)	2500
Bar Capacity	mm	52		75	105
<b>MOTOR</b>					
Spindle 1 Motor Power (Cont./30min)	kW	11/15		15/18.5	
Spindle 2 Motor Power (Cont./30min)	kW	7.5/11		11/15	15/18.5
Rotary Tool Driver Power	kW	3.7/5.5			
<b>TURRET</b>					
Tooling system		BMT-55N			
Number Of Tools	station	16+16	15+15	16+16	
Square Tool Shank Size	mm	20(25)			
Round Tool Shank Size	mm	25(32)		32(40)	
Max. Rotary Tool Speed	rpm	6000			
<b>TRAVELS</b>					
X1/X2 axis Travel	mm	190	170	210	
Z1/Z2 axis Travel	mm	600	570	600	
Y1/Y2 axis Travel	mm	±50/-	±50	-	
B-axis Travel	mm	700	650	1500	1400
<b>FEED RATES</b>					
X1/X2 axis Rapid Traverse Rate	m/min	20			
Z1/Z2 axis Rapid Traverse Rate	m/min	36		30	
Y1/Y2 axis Rapid Traverse Rate	m/min	10		-	
B-axis Rapid Traverse Rate	m/min	40		30	
<b>TAILSTOCK</b>					
Tailstock Body Travel	mm	-			
Quill Travel	mm	-			
Quill Diameter	mm	-			
Quill Taper	MT#	-			
<b>DIMENSIONS</b>					
Machine dimension (L x W x H)	m	4.0 x 2.5 x 2.4	4.0 x 2.4 x 2.4	6.0 x 2.4 x 2.4	
Machine Weight	kg	10000	10500	11500	13000

Item / Model		UA-250	UZ-2000T2MW	UZ-2000T2M	UZ-2000T2Y
Controller		FANUC Oi-T			
<b>CAPACITY</b>					
Swing Over Bed	mm	700	660		
Swing Over Saddle	mm	600	620		
Max. Turning Diameter	mm	360	320		
Max. Turning Length	mm	290	790		
Bed Slant Angle	degree	30	45		
Guideway Type		Box	Linear + Box		
<b>SPINDLE 1</b>					
Spindle Nose Taper	ASA	A2-11	A2-5(A2-8 / A2-11)		
Spindle Drive Type		Belt	Bulit-in / Belt		
Chuck Diameter	inch	15	6 (8 / 10 / 15)		
Spindle Speed	rpm	2500	5000 / 3500 / 2500		
Bar Capacity	mm	105	52 (78 / 105)		
<b>SPINDLE 2</b>					
Spindle Nose Taper	ASA	A2-11	-	A2-5(A2-6)	
Spindle Drive Type		Belt	-	Bulit-in	
Chuck Diameter	inch	15	-	6 (8)	
Spindle Speed	rpm	2500	-	5000 (4500)	
Bar Capacity	mm	105	-	52 (65)	
<b>MOTOR</b>					
Spindle 1 Motor Power (Cont./30min)	kW	15/18.5	11/15 (15/18.5)		
Spindle 2 Motor Power (Cont./30min)	kW	15/18.5	11/15		
Rotary Tool Driver Power	kW	-	3.7/5.5		
<b>TURRET</b>					
Tooling system		BMT-55N	BMT-40		
Number Of Tools	station	12+12	16+16		
Square Tool Shank Size	mm	25	20		
Round Tool Shank Size	mm	40	32		
Max. Rotary Tool Speed	rpm	-	6000		
<b>TRAVELS</b>					
X1/X2 axis Travel	mm	210	210		
Z1/Z2 axis Travel	mm	500	840		
Y1/Y2 axis Travel	mm	-	-	-	-45/+65
B-axis Travel	mm	1200	-	920	
<b>FEED RATES</b>					
X1/X2 axis Rapid Traverse Rate	m/min	20		30	
Z1/Z2 axis Rapid Traverse Rate	m/min	24	36	40	30
Y1/Y2 axis Rapid Traverse Rate	m/min	-	-	-	30
B-axis Rapid Traverse Rate	m/min	24	-	40	
<b>TAILSTOCK</b>					
Tailstock Body Travel	mm	-	770	-	
Quill Travel	mm	-	120	-	
Quill Diameter	mm	-	85	-	
Quill Taper	MT#	-	5	-	
<b>DIMENSIONS</b>					
Machine dimension (L x W x H)	m	5.6 x 2.6 x 2.4	5.1 x 2.4 x 2.4	4.7 x 2.4 x 2.3	
Machine Weight	kg	11000	10500	11000	

■The manufacturer reserves the right to modify the design, specifications, mechanisms, etc. to improve the performance of the machine without prior notice. All the specifications shown above are just for reference.