

"Production of Impressive Value"  
Motive by achievement for evolitional production

# Cincom

Sliding Headstock Type Automatic CNC Lathe

## A20vii

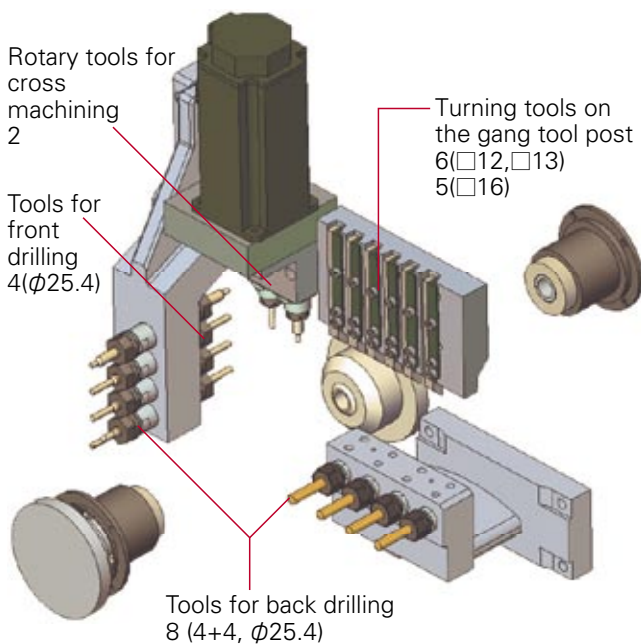


**CITIZEN**  
Micro HumanTech

# Exceptional Productivity and Cost Performance in a 5-axis $\phi 20$ Machine

The A20 has been acclaimed by customers as a high rigidity, low cost machine. Now we are launching the A20VII model with an additional axis on the back spindle. It inherits the overwhelming cost performance that was the major characteristic of the A20 and has achieved an extraordinarily reasonable price for a 5-axis,  $\phi 20$  machine. Installing an X2 axis on the back spindle enables front/back parallel machining and this in combination with the fast rapid feed rate has substantially cut cycle times. Conformity with IP54 and ISO12100. Reduces the failure rate and provides safety for the operator.

## Standard Tool Layout



## 2 Rotary tools in the standard spec.

There are two cross machining rotary tools in the standard specifications, but simply adding a cross-milling spindle (BSC210) or end face drilling spindle (BSE107) allows a third rotary tool to be used.

## 4 Rotary tools (option)

Using the optional four tools spindle device (U32B) gives the customer four cross machining rotary tools. One of the positions can be fitted with a cross-milling spindle (BSC210) or an end face milling spindle (BSE107). With the four tool spindle specification there are five turning tools on the gang tool post (□12, □13) and the maximum tool spindle speed is 6,000 min<sup>-1</sup> (rating: 4,500 min<sup>-1</sup>).

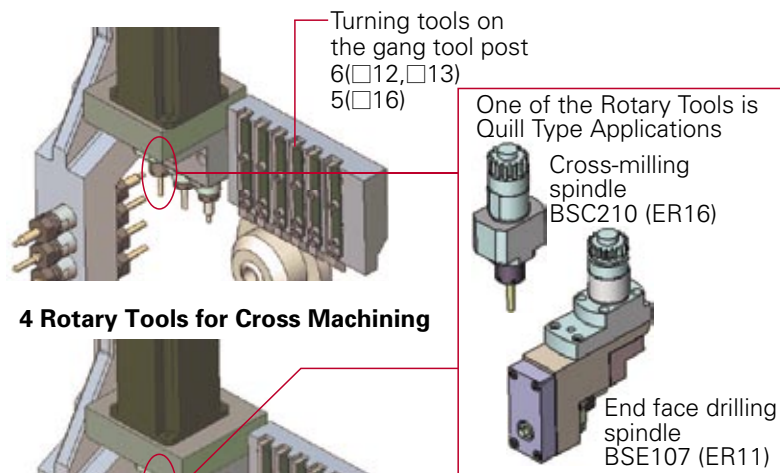
## End Face Milling Spindle (BSE107)

End face drilling spindle (BSE107) that can be fitted to the quill section of a tool spindle device can be up to front eccentric drilling process (available tool length is 40mm).

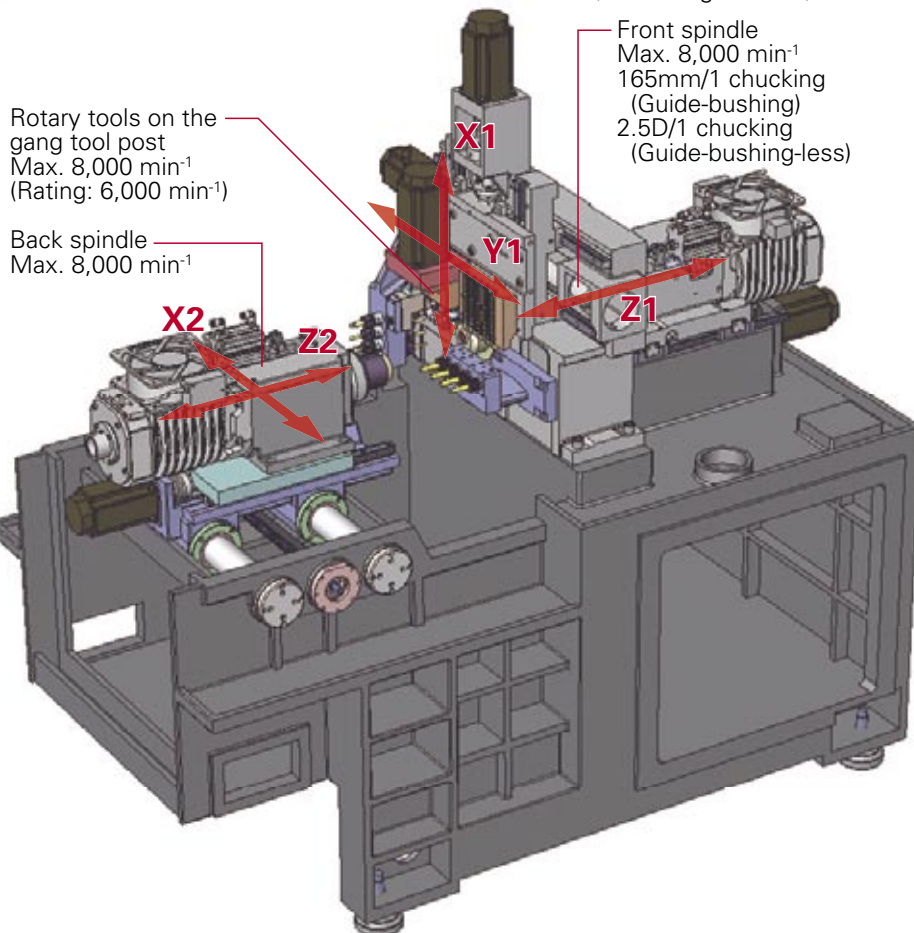
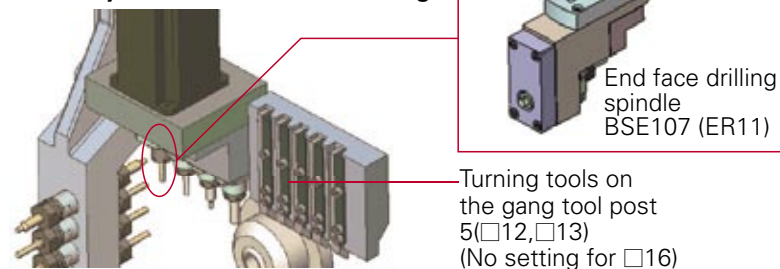
## Independent Back Tool Post

Four  $\phi 25.4$  mm drill sleeves can be fitted to the back tool post. Installing an X2 axis enables the customer to carry out parallel front machining with gang tools and back machining with the back tool post, which makes substantial reductions in cycle time possible.

## 3 Rotary Tools for Cross Machining



## 4 Rotary Tools for Cross Machining



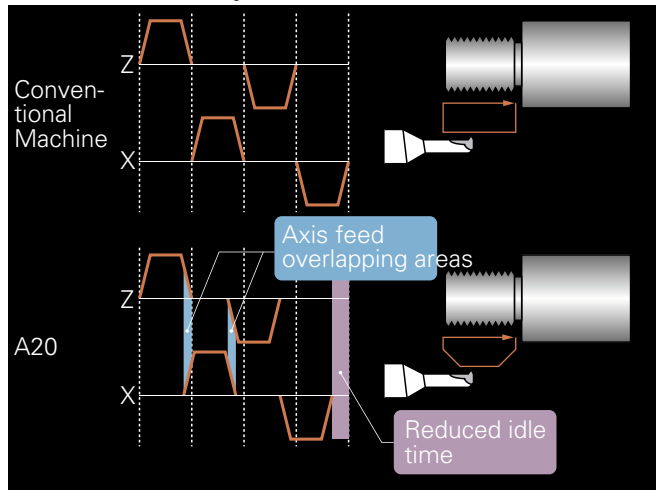
# Productivity and High-Rigidity Inherited from Top Class Machines. Rapid Feed Rate of 32m/min and Streamline Control.

The same approach to productivity improvements that won acclaim in high ranking models like the K12/16 and L16/20 has also been applied unsparingly in the A20 machines. Idle time has been slashed by using Citizen's unique "streamline control" control technique. These factors combined with a speeding up of the rapid feed rate achieve substantial reductions in idle time.

## Streamline Control

Streamline control is Citizen's unique control technique that ensures high speed and smooth operation. It reduces idle time with no effects on cutting. The "axis motion overlap function" starts the next axis motion without waiting for the completion of the current one. This eliminates wasteful idle time and realizes optimum operation by suppressing machine vibration. "Direct C-axis Indexing" is the position at which the spindle decelerates to a stop after rotating can be made the index position, substantially shortening indexing time. And, in the operation for selecting a tool for back machining including operation of the newly equipped X2 axis, the mechanical shock damages are reduced by making the tool path an arc, thus reducing tool change time by motion overlap.

## Axis Motion Overlap Function

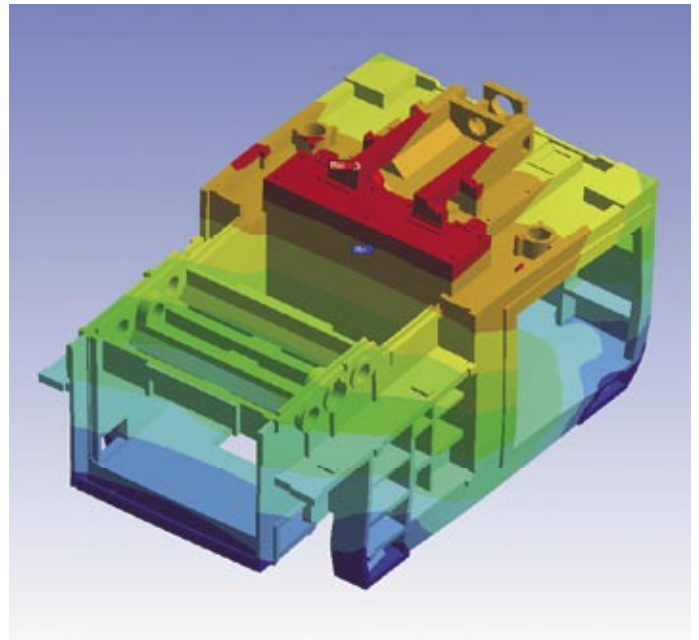


## Rapid Feed Rate of 32m/min

In a considerable improvement on the 18m/min. rapid feed rate of the A20VI, the A20VII travels at 32m/min. (18m/min. for the X1 axis only).

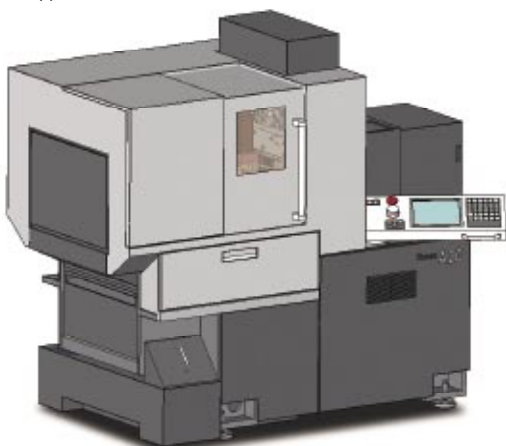
## High-Rigidity and Left/Right Symmetrical Bed

With a bed 1.8 times as heavy as those of existing machines, the machine is constructed to counter thermal displacement. The relatively small thermal displacement of the bed during long periods of operation promotes high accuracy.

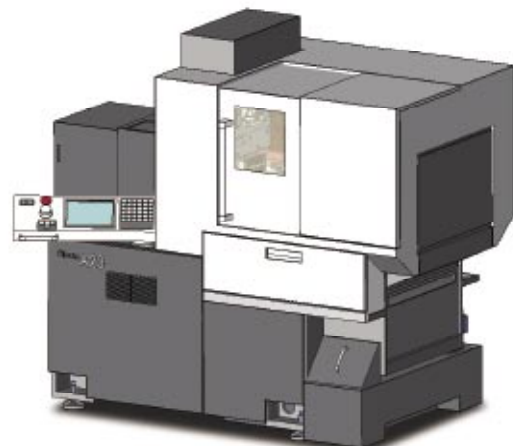


# A Rich Line-up to Suit a Variety of Needs, with Left and Right Spindles, Guide-bushing and Guide-bushing-less.

The availability of right-spindle and left-spindle variations that was a major characteristic of the A20 machines has been continued in the type VII. Whether spindles are located at the left or right can be selected in accordance with the environment at the site and the direction in which the customer is used to working. For each model the customer can select specifications with a guide bushing or specifications without a guide bushing, giving a total line-up of four types.



**A20 right spindle machine**  
(VII PL: Guide-bushing model)  
(VII CL: Guide-bushing-less model)



**A20 left spindle machine**  
(VII PR: Guide-bushing model)  
(VII CR: Guide-bushing-less model)

# Machine Specification

Item	A20 VII	
	PL/PR (Guide-bushing)	CL/CR (Guide-bushing-less)
Maximum machining diameter (D)	φ20mm	
Maximum machining length (L)	165mm/1chucking	2.5D/1chucking (Z1stroke 55mm)
Maximum front drilling diameter	φ10mm	
Maximum front tapping diameter (tap, die)	M8	
Spindle through-hole diameter	φ31mm	φ28.5mm
Main spindle speed	8,000min <sup>-1</sup>	
Maximum drilling diameter for the gang rotary tool	φ7mm	
Maximum tapping diameter for the gang rotary tool	M6	
Spindle speed of the gang rotary tool	max.8,000min <sup>-1</sup> (rating 6,000min <sup>-1</sup> )	
(with 4 rotary tools driving device)	max.6,000min <sup>-1</sup> (rating 4,500min <sup>-1</sup> )	
Maximum chuck diameter of back spindle	φ20mm	
Maximum protrusion length of the back spindle workpiece	50mm	2.5D (max.50mm)
Maximum protrusion length	100mm	2.5D (max.50mm)
Maximum drilling diameter in back machining process	φ8mm	
Maximum tapping diameter in back machining process	M6	
Back spindle speed	8,000min <sup>-1</sup>	
Number of tools to be mounted	20	
Turning tools on the gang tool post	6 (□12,13), 5 (□16)	
Cross rotary tools	2 (3-4 <sup>OP</sup> )	
Tools for front drilling	4	
Tools for back drilling	8 (4+4)	
Tool size		
Tool (gang tool post)	□12mm (□13mm, □16mm)	
Sleeve	φ25.4mm	
Chuck and bushing		
Main spindle collet chuck	FC034-M	FC925-M-K
Back spindle collet chuck	FC034-M-K	
Rotary tool collet chuck	ER11, ER16	
Chuck for drill sleeves	ER16	
Guide bushing	WFG206-M	—
Rapid feed rate		
X2,Y1,Z1,Z2 axes	32m/min	
X1 axis	18m/min	
Motors		
Spindle drive	2.2/3.7kW	
Tool spindle drive	0.75kW	
Back spindle drive	1.1/1.5kW	
Coolant oil	0.25kW	
Lubricating oil	0.003kW	
Center height	1050mm	
Input power capacity	6kVA	
Air pressure and air flow rate for pneumatic devices	0.5MPa · 90NI/min (max.50NI/min)	
Weight	2400kg	

## Standard accessories

Main spindle chucking device
Back spindle chucking device
Headstock cooling device
Gang rotary tool driving devices
Coolant device (with level detector)
Lubricating oil supply unit (with level detector)
Machine relocation detector
Door lock function
Workpiece separator
Pneumatic device for air sealing
Cut-off tool breakage detection
Lighting
Rotary guide bushing device

## Special Accessories

Knock-out jig for through-hole workpiece
Workpiece conveyor
Chip conveyor
Workpiece separator for front collection
Coolant flow rate detector
Signal lamp
3-color signal tower

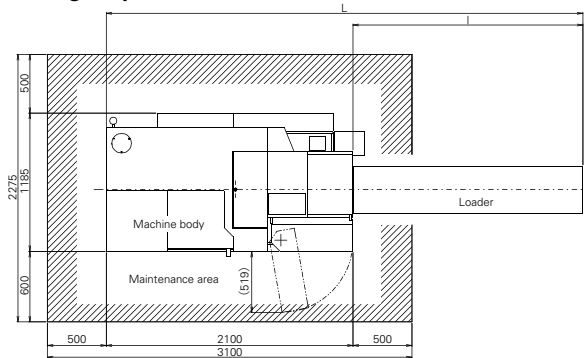
## Standard NC functions

NC unit dedicated to the A20
7.2 inch monochrome liquid crystal display (LCD)
Program storage capacity : 40m
Tool offset pairs : 32
Product counter indication (up to 8 digits)
Spindle speed change detector
Automatic power-off function
Main spindle indexing at 15 intervals
On-machine program check function
Constant surface speed control function

## Special NC functions

Variable lead thread cutting
Chamfering, corner R
Direct input of drawing dimensions
Spindle synchronized function
Spindle 1 indexing function
Spindle C-axis function
Milling interpolation
Back spindle 1 indexing function
Back spindle C-axis function
Multiple repetitive cycle for turning
Canned cycle drilling
Rigid tapping function
Y-axis offset
Tool offset pairs : 49
Tool life management I
Tool life management II
Program storage capacity 80m
Program storage capacity 120m
Submicrom commands
User macros
Inch command
Sub inch command

## A20 VII Right Spindle Machine Standard



## CITIZEN MACHINERY CO.,LTD.



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Micro HumanTech

URL: <http://cmj.citizen.co.jp/>

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