CITIZEN

Cincom

L20

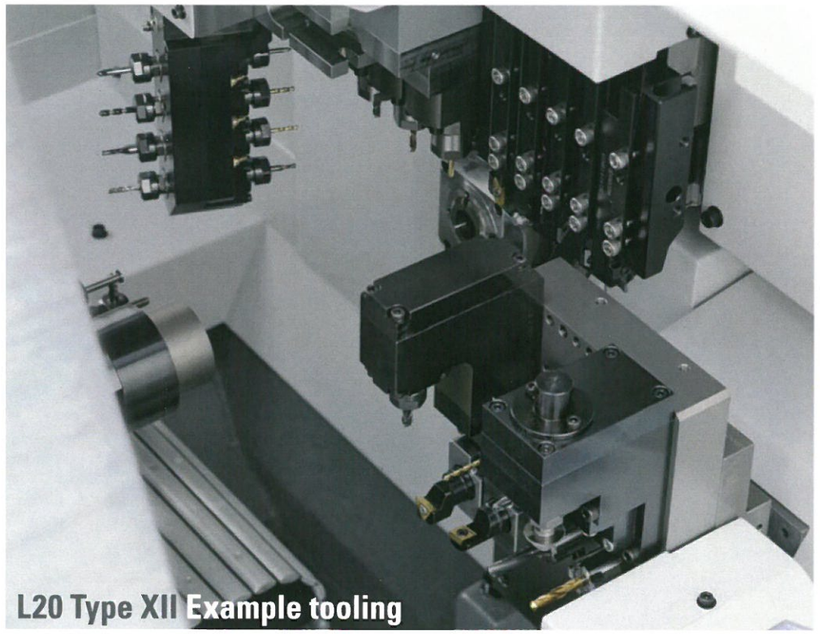
Sliding Headstock Type CNC Automatic Lathe

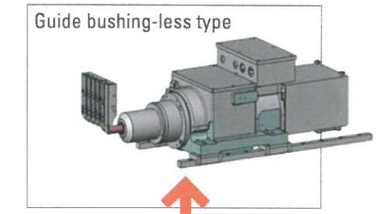
Our best-selling L20 completely renewed

A machine synonymous with the history of Cincom has been designed for the new age with 4 models in modular design.
Ranging from a 5-axis machine with excellent cost performance to a high-end machine equipped with B axis and a back spindle Y axis, you can select the machine according to the functions you require.
This concept offers unrivalled versatility with two types of gang tool post, five types of opposite tool post and three types of back tool post are available to be specified according to the functions required.

Stable, powerful, and highly productive with versatility of modular design

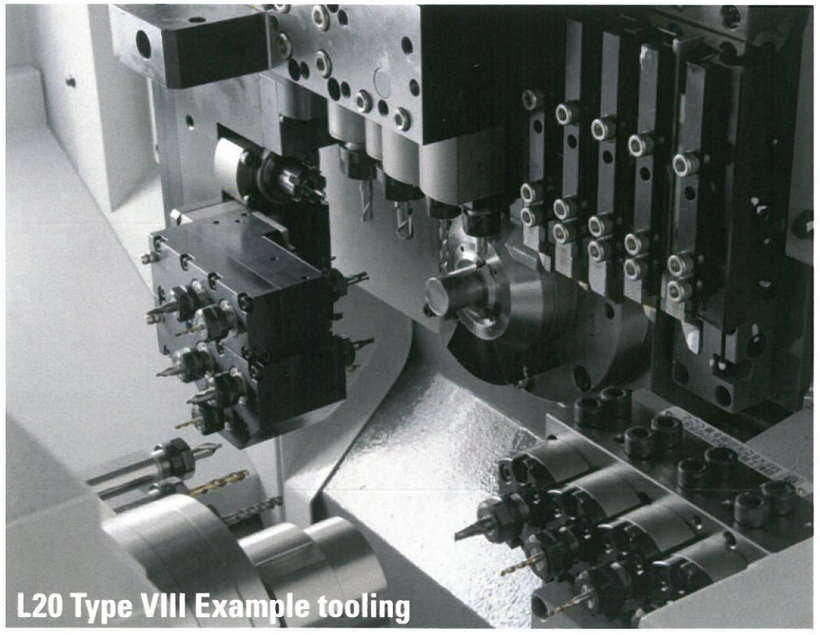
With the current shift in manufacturing industry, the requirement is for variable-lot machining of a wide range of workpieces. In order to meet this requirement, Citizen has introduced modular design. We allow the selection of functions corresponding to a diverse range of machining needs, and help customers to optimize their manufacturing by combining these functions to achieve their ideal machine configuration.

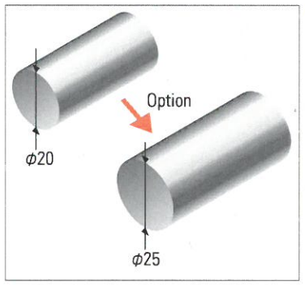

L20 Type XII Example tooling



Ability to use as a guide bushing type or guide bushing-less type by switching between them

Either type can be selected as appropriate, when machining long, thin workpieces, when using cold drawn material, and in order to leave short remnant bars.


L20 Type VIII Example tooling

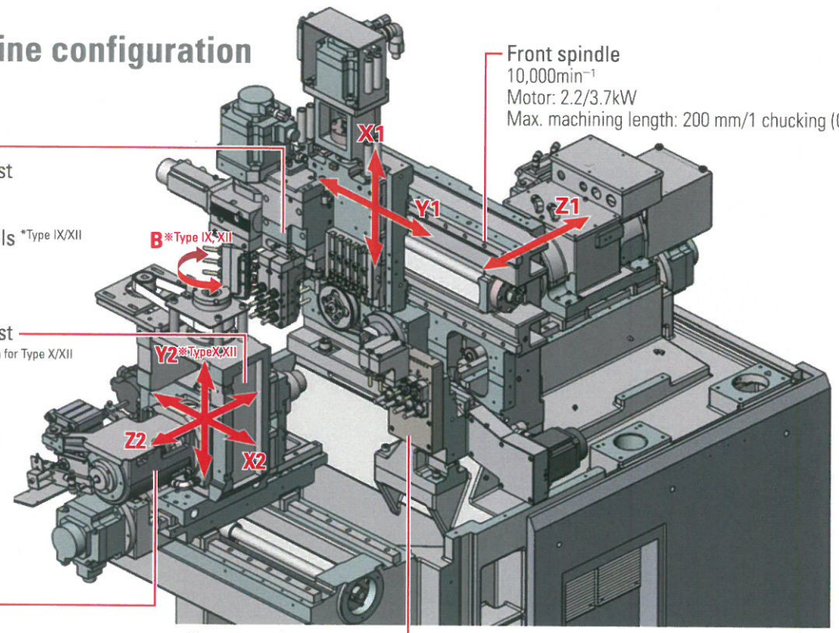


ϕ20mm max. bar as standard; ϕ25mm as option

Supply of bar stock up to ϕ25mm is supported as an option. The machining length per chucking is 200mm (ϕ20mm) and 188mm (ϕ25mm).
The long workpiece unit (option) supports workpieces up to ϕ20mm.

The new L20 – now with 4 models each can be specified to deliver the functions you need: from simple to complex workpieces and for small, medium and large lot sizes

L20 machine configuration



Front spindle
10,000min⁻¹
Motor: 2.2/3.7kW
Max. machining length: 200 mm/1 chucking (GB)

Rotary tools on the gang tool post
6,000min⁻¹(Max)
4,500min⁻¹(rating)

B-axis rotary tools *Type IX/XII
8,000min⁻¹(Max)
6,000min⁻¹(rating)
Motor: 1.0kW

Opposite tool post
Rotary tools *Option for Type X/XII
7,500min⁻¹(Max)
6,000min⁻¹(rating)
Motor: 0.75kW

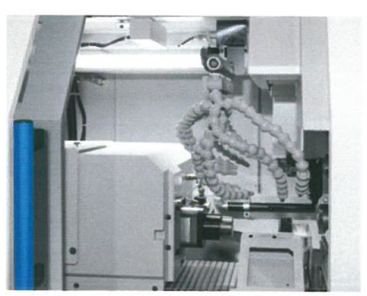
Back spindle
8,000min⁻¹
Motor: 0.75/1.5kW

Rotary tools on the back tool post
7,500min⁻¹(Max)
6,000min⁻¹(rating)
Motor: 0.75kW

	Type VIII	Type IX	Type X	Type XII
B axis (rotary tools on the gang tool post)	–	○	–	○
Opposite tool post Y axis	–	–	○	○
Number of tools	3	3	6	6
Rotary tools	–	–	OP	OP
Back tool post Number of tools	4	4	8	8
Rotary tools	OP	OP	○	○

and with Citizen's renowned 'ease of use'

Position adjustable operation panel
By swiveling the position adjustable operation panel, you can perform operations while viewing the machining area.

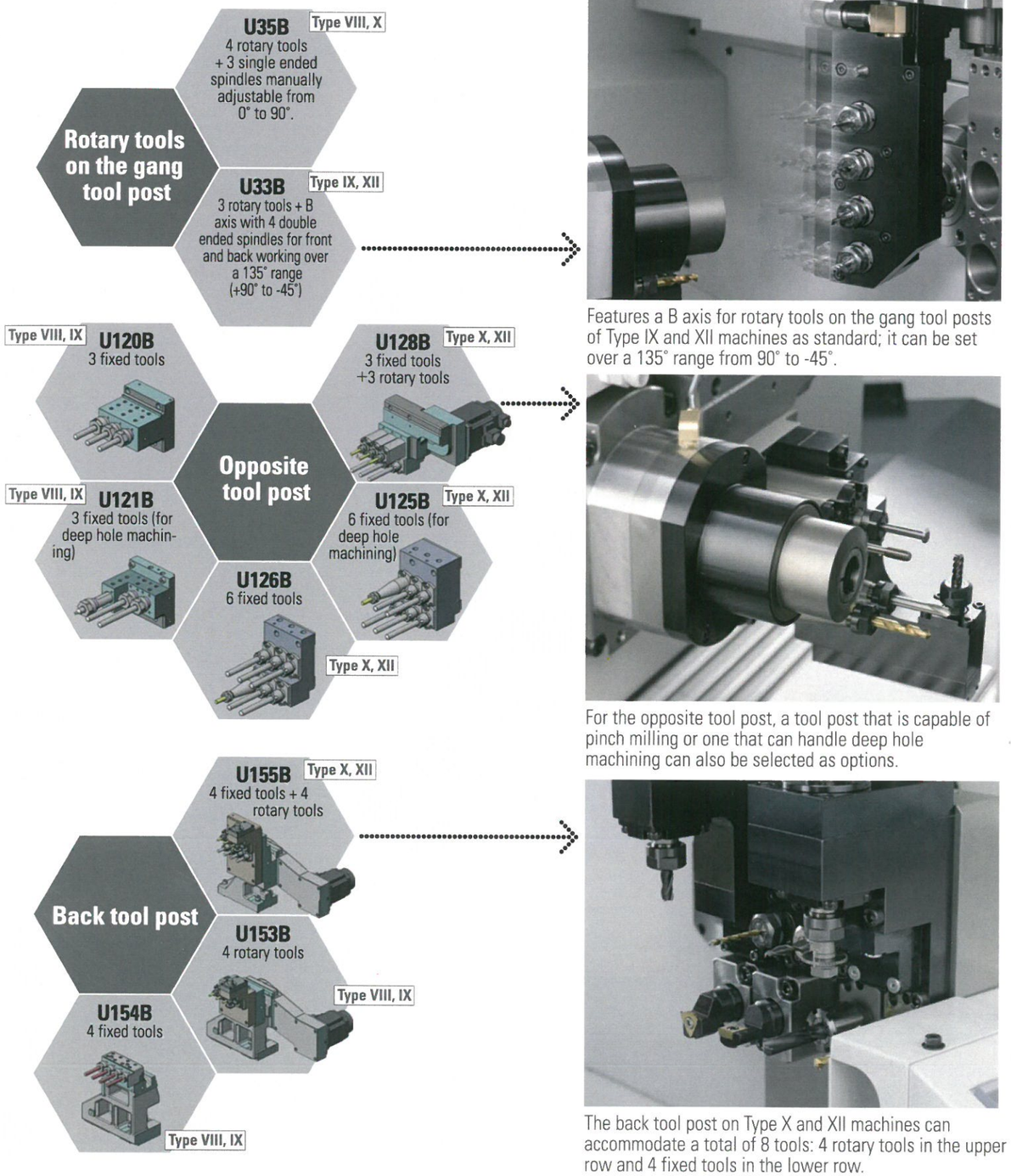


In-machine lighting
Low energy LED lighting provides excellent brightness, clarity and visibility.

NC program I/O
NC programs can be input and output using a USB memory stick or compact flash card.

Selectable modules to improve your productivity and profitability

Function modules that can be combined without restrictions



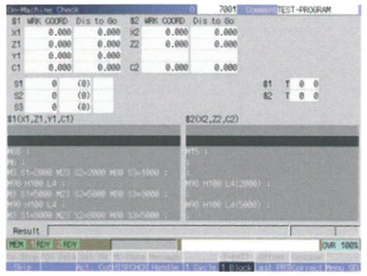
Features a B axis for rotary tools on the gang tool posts of Type IX and XII machines as standard; it can be set over a 135° range from 90° to -45°.

For the opposite tool post, a tool post that is capable of pinch milling or one that can handle deep hole machining can also be selected as options.

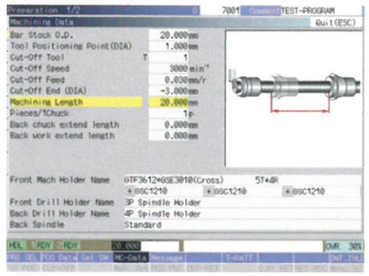
The back tool post on Type X and XII machines can accommodate a total of 8 tools: 4 rotary tools in the upper row and 4 fixed tools in the lower row.

Intuitive screen display is readable at a glance

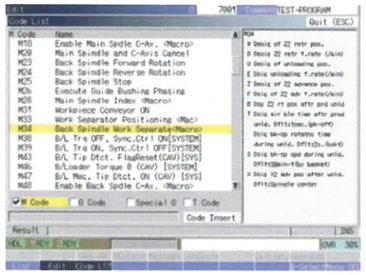
Equipped with high-speed NC
The machine is equipped with the latest NC model to drastically reduce the start-up and screen switching time compared to conventional machines with advanced functions.



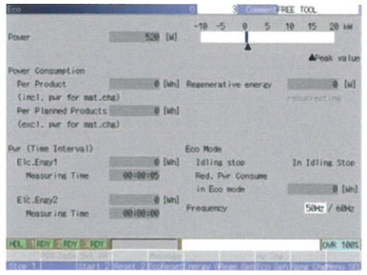
On-machine program check function
Using manual handle feed, operations can be run in the forward or reverse directions, and you can temporarily stop program operation, edit the program, and then restart operation.



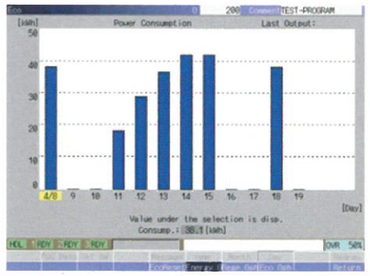
Display of easily understood illustrations
Illustrations appropriate for each item are displayed. You can see what they mean at a glance (the screen shown above displays the machining data).



Display of code list
The function displays the list of G and M codes including explanations to aid programming.



Eco screen
The current power consumption is shown on the screen, along with the cumulative power consumption, and the power regeneration (generation) status.



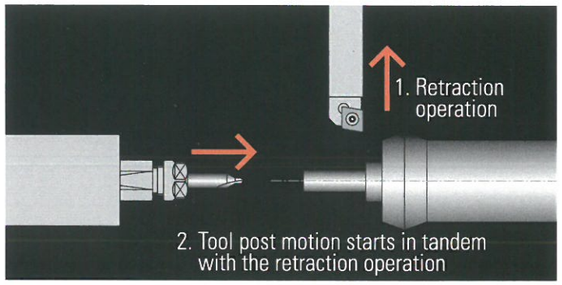
Eco screen (example graph display)
The machine's power consumption can also be shown in the form of an easy-to-understand graph.

The next process starts before the current one ends

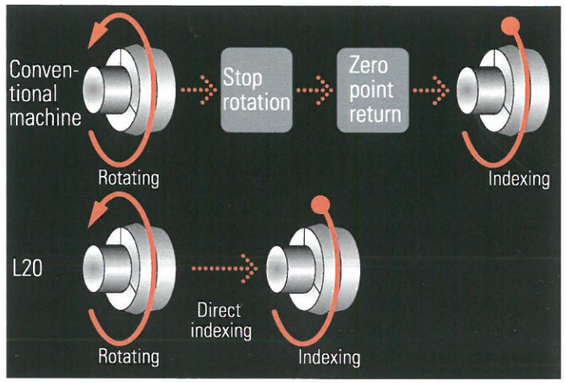
Cincom Control saves time between processes

Cincom Control
We have developed a new control system unique to Citizen that realizes fast and smooth operation. It reduces idle time and achieves faster rapid feed together with substantial shortening of cycle times.

Multiple tool post overlapping function
Independent opposite and gang tool posts are provided. In front machining, idle time has been completely eliminated by using a unique control method whereby the tool post to be used next starts the preparation for machining without waiting for the other one to complete its retraction operation.

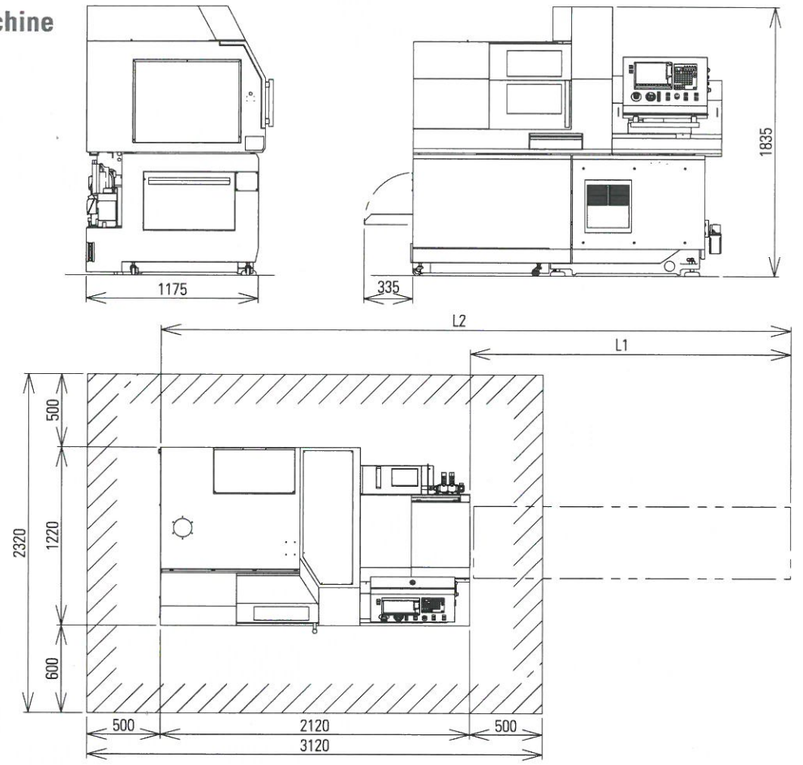


Direct spindle indexing function
This substantially reduces spindle indexing time. When indexing the spindle, this function allows the spindle to be decelerated and stopped at the required index position by specifying this position with a C-axis command while the spindle is rotating. This eliminates the idle time up until rotation stops, and improves working efficiency.

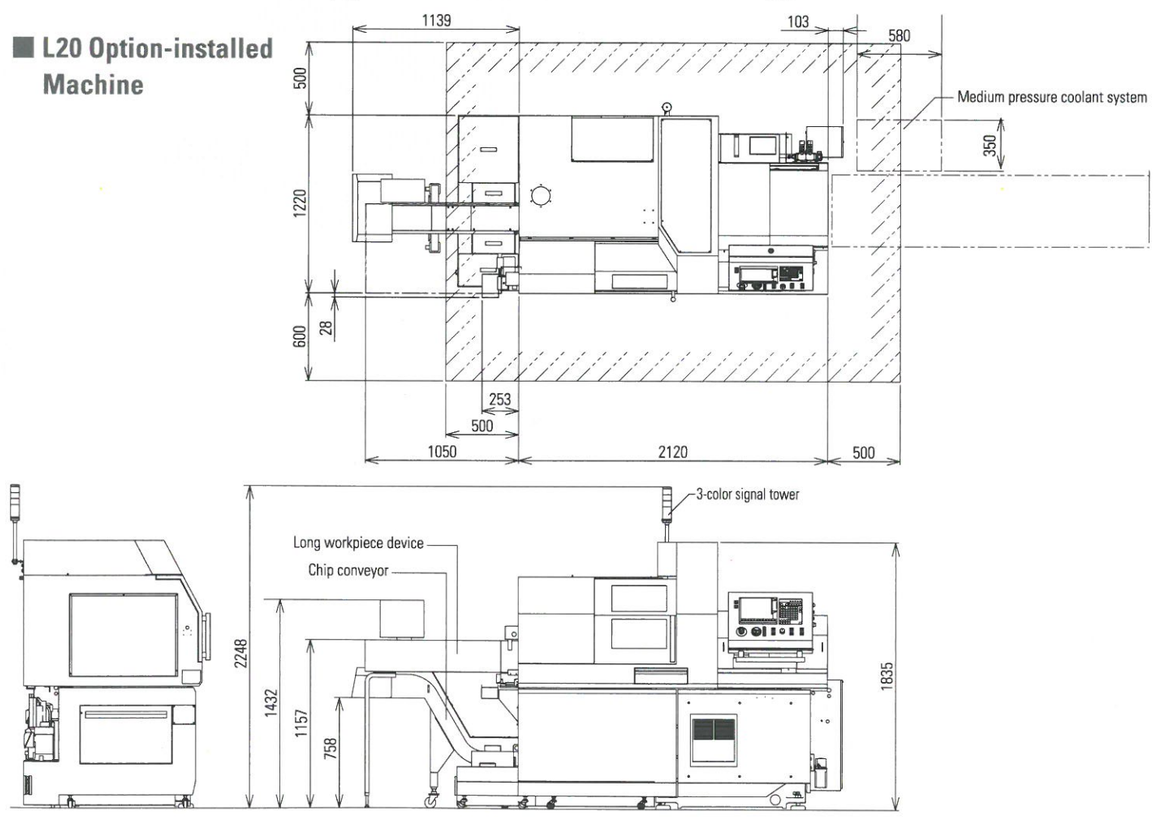


Machine Layout

■ L20 Standard Machine



■ L20 Option-installed Machine



Machine Specification

Item	L20			
	Type VIII (L20E-2M8)	Type IX (L20E-2M9)	Type X (L20E-2M10)	Type XII (L20E-2M12)
Max. machining diameter (D)	φ20mm (φ25DP)			
Max. machining length (L)	GB:200mm/1chucking (188mm:φ25 spec.) GBL:2.5D			
Max. front drilling diameter	φ10mm			
Max. front tapping diameter	M8 (tap)			
Spindle through-hole diameter	φ26mm			
Main spindle speed	Max.10,000min^{-1}			
Max. chuck diameter of the back spindle	φ20mm (φ25DP)			
Max. protrusion length of the back spindle workpiece	30mm			
Max. protrusion length	80mm			
Max. drilling diameter for the back spindle	φ8mm			
Max. tapping diameter for the back spindle	M6			
Back spindle speed	Max.8,000min^{-1}			
Gang rotary tool				
Max. drilling diameter	φ8mm			
Max. tapping diameter	M6(tap)			
Spindle speed	Max.6,000min^{-1} (Rating 4,500min^{-1})			
Back tool post rotary tool *type X,XII				
Max. drilling diameter	OP		φ5mm	
Max. tapping diameter	OP		M4 (tap)	
Spindle speed	OP		Max.7,500min^{-1}(Rating 6,000min^{-1})	
Front rotary tool*				
Max. drilling diameter	–		φ5mm	
Max. tapping diameter	–		M4 (tap)	
Spindle speed	–		Max.7,500min^{-1}(Rating 6,000min^{-1})	
Number of tools to be mounted max	37	33	44	40
Gang turning tool	5			
Gang rotary tool	25	21	25	21
Front drilling tool	3		6	
Back drilling tool	4		8	
Tool size				
Gang turning tool	□12mm(□13mm、□16mm)			
Sleeve	φ25mm(GDS107、210)、φ19.05mm			
Chuck and bushing				
Main spindle collet chuck	FC034-M、FC071-M			
Back spindle collet chuck	FC034-M-K、FC071-M-K			
Rotary tool collet chuck	ER11、ER16			
Chuck for drill sleeves	ER11、ER16			
Guide bushing	WFG206-M			
Rapid feed rate				
All axes (except Y2)	32m/min			
Y2 axis	–		8m/min	
Motors				
Spindle drive	2.2/3.7kW			
Gang tool post rotary tool drive	1.0kW			
Back spindle drive	0.75/1.5kW			
Back tool post rotary tool drive	–		0.75kW	
Front rotary tool drive*	0.75kW			
Coolant oil	0.4kW			
Lubricating oil	0.003kW			
Center height	1,050mm			
Rated power consumption	7.3kVA			
Full-load current	32A			
Main breaker capacity	40A			
Air pressure	0.5MPa			
Weight	2,350kg		2,400kg	

*Front rotary tool drive unit is optional

Standard accessories	
Main spindle chucking unit	Door lock
Back spindle chucking unit	Cut-off tool breakage detector
Gang rotary tool driving unit	Workpiece separator
Coolant unit (with level detector)	Lighting
Lubricating oil supply unit (with level detector)	Main spindle coolant unit
Machine relocation detector	Back tool post rotary unit *type X,XII

Special accessories	
Rotary guide bushing unit	Coolant flow rate detector
Knock-out jig for through-hole workpiece	Signal lamp
Workpiece conveyor	3-color signal tower
Chip conveyor	Front rotary tool unit *type X,XII
Medium-pressure coolant unit	

Standard NC functions	
CINCOM SYSTEM M70LPC-VU (Mitsubishi)	Interference check function
8.4 inch color LCD	Spindle speed change detector
USB slot	Constant surface speed control function
Program storage capacity : 40m (approx.16KB)	Automatic power-off function
Tool offset pairs : 40	Main spindle indexing at 1° intervals
Product counter indication (up to 8 digits)	On-machine program check function
Operating time display function	Chamfering, corner R
Machine operation information display	Nose radius compensation
Multiple repetitive cycle for turning	Eco indication
B axis control function *type IX,XII	

Special NC functions	
Variable lead thread cutting	Optional block skip (9 sets)
Arc threading function	Back machining program skip function
Geometric function	Tool life management I
Spindle synchronized function	Tool life management II
Spindle C-axis function	Program storage capacity 600m (approx. 240KB)
Milling interpolation	External memory program driving
Back spindle 1°indexing function	Submicron commands
Back spindle C-axis function	User macros
Back spindle chasing function	Helical interpolation function
Canned cycle drilling	Hob function
Rigid tapping function	Polygon function
High speed Rigid tapping function	Inch command
Synchronized tapping phase adjustment function	Sub inch command
Differential speed rotary tool function	Network I/O function
Tool offset pairs : 80	

Environmental Information

Basic Information	Energy usage	Power supply voltage	AC200V
		Electrical power requirement (Max)	7.3kVA
		Required pneumatic pressure	0.5MPa
Environmental Performance Information	Power consumption	Standby power *1	0.300kW
		Power consumption with model workpiece *2	0.0113kWh/cycle
		Power consumption value above converted to a CO_2 value *3	5.4g/cycle
	Air consumption	Required air flow rate	53NL/min (max.210 NL/min., during air blow)
	Lubricant consumption	At power ON	2.5cc/60min
	Noise level	Value measured based on JIS	75.2dB
Approach to Environmental Issues	Environmental load reduction	RoHS Directive / REACH regulations	Compliant
	Recycling	Indication of the material names of plastic parts	Covered in the instruction manual *4
	Environmental management		We are ISO14001 accredited. We pursue "Green Procurement", whereby we make our purchases while prioritizing goods and services that show consideration for the environment.

*1 : This is the standby power in the idle stop mode (a function that turns servomotor excitation off when it is not necessary, for example during program editing).
*2 : This is the power consumption in program operation (when not cutting) for one of our standard test pieces, shown for the purpose of comparing the environmental performance with that of existing models.
*3 : This is the value converted in accordance with the CHUBU Electric Power CO_2 emissions coefficient for 2009 as published by the Ministry of the Environment.
*4 : If polyvinyl chloride (PVC) and fluoric resin are not processed correctly they can generate harmful gases. When recycling these materials, commission a contractor that is capable of processing them appropriately.

CITIZEN

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