CITIZEN

Cincom

L12-VII

LFV technology

Sliding Headstock Type CNC Automatic Lathe

The L12 - The perfect solution for small diameter work with switchable guide bush and 15,000 rpm spindle

Building on the legacy of Citizen's L series machines, setting the benchmark of functionality and performance.

Outstanding performance for machining high speed, small diameter application with 15,000 rpm on main spindle and 10,000 rpm on sub spindle.

Now with the added flexibility of using in either standard guide bush or non-guide bush mode with simple setup of both modes.

The regular guide bush can be used for long or slender parts. The non-guide bush mode can be used for short parts to save material wastage.

Achieving optimum machining conditions

High-speed spindle and rotary tools

The maximum speed of the front spindle is 15,000 min-1 even when using a rotary guide bush (maximum machining length: 135mm per chuck), and rotary tools are able to reach speeds of 10,000 min-1. This makes it possible to use the optimum machining conditions when machining small diameter bar material or using small diameter drills or end mills.

Handles workpieces with complex shapes

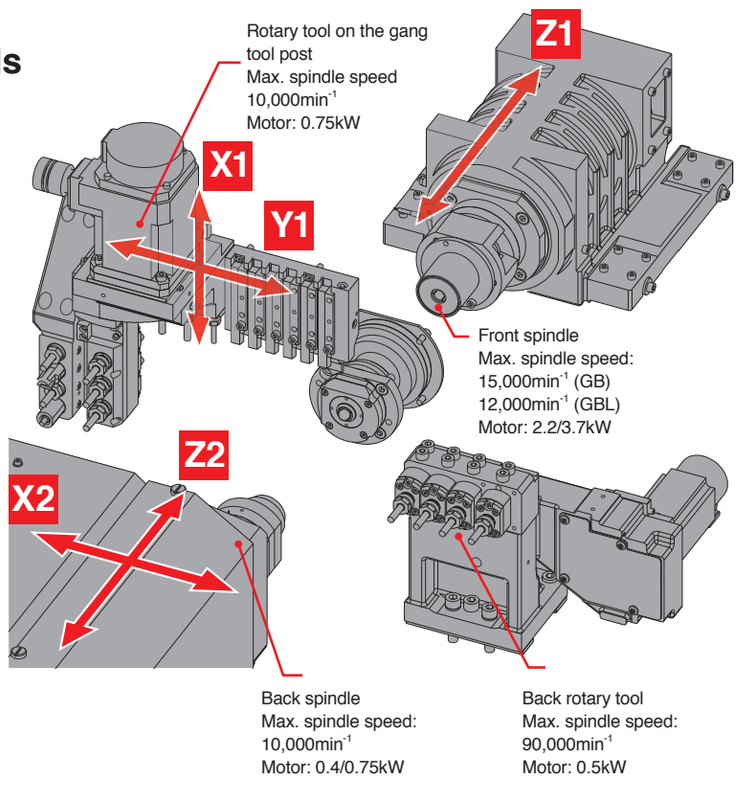
Comprehensive tooling

A full range of optional tooling is available.Three double ended rotary tools (angle adjustable from 0° to 30°) can be mounted among the rotary tools on the gang tool post. In addition, adopting rotary tool specifications for the back tool post has made it possible to mount end face rotary tools and a slitting spindle for back machining.

Improved productivity per unit area

Compact design

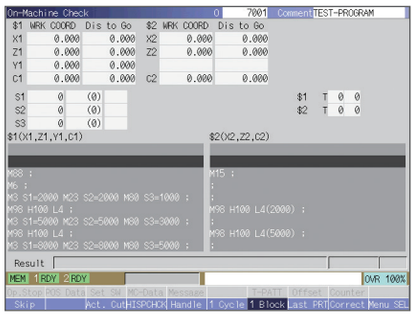
The design is only 1,760 mm wide by 820 mm deep. You can introduce a high-productivity, 5-axis machine into the same space as required to install a B12 machine up until now.



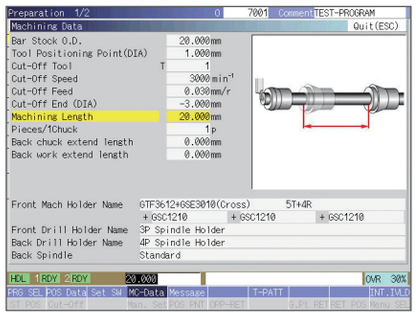
Intuitive screen display is easy to use and read

Screen designed from the operator's perspective and comfortable to use

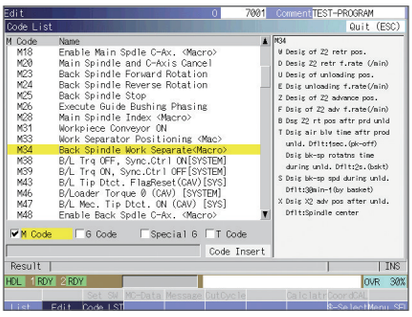
Equipped with high-speed NC
The machine is equipped with the latest NC model to drastically reduce the start-up and screen switching time compared to conventional machines with advanced functions. This feature provides stress-free operation environment.



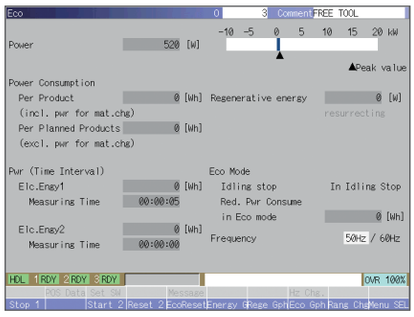
On-machine program check function
The program can be run round using the handwheel giving enhanced user confidence. The program can run in forward or reverse directions and can be paused to edit before restarting.



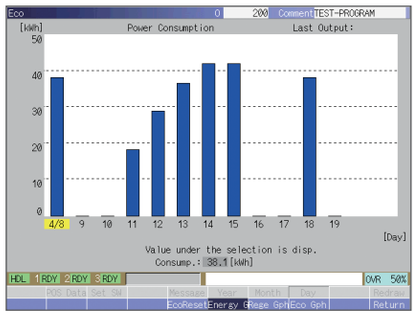
Display of easily understood illustrations
In response to the selection of an item, the corresponding illustration is displayed on the screen so that the operator can easily recognise the meaning of the selected item. (The screen shown above displays the machining data).



Display of code list
The function displays the list of G and M codes including explanations of each code.



Eco Screen
The current power consumption is shown on the screen, along with the maximum power consumption value, the power consumption record, the cumulative power consumption and the power regeneration (generation) status. Data can be output too.

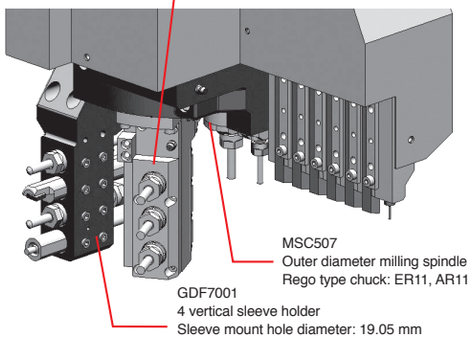


Eco Screen
The machine's power consumption can be shown in the form of an easy-to-understand graph.

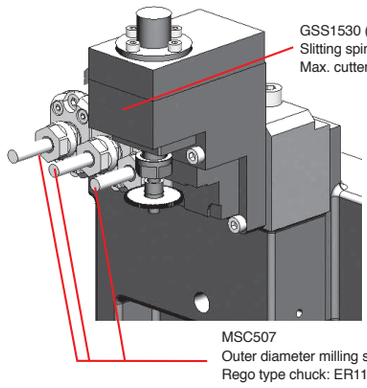
Comprehensive tooling

A maximum of 27 tools can be mounted. A drilling tool can be added to the opposite tool post, which is effective for deep hole machining.

Gang tool post



Back tool post



LFV

LFV technology

LFV* (low-frequency vibration) cutting is a technology for cutting in which each X/Z servo axis is vibrated in the cutting direction and synchronized with the spindle speed. This reduces various types of problems such as cutting chips being caught up in components, workpieces or cutting tools, and enables small-diameter deep hole drilling and machining of materials that are difficult to cut.

Model type	Front X1, Z1	Back X2, Z2	LFV Mode 1	LFV Mode 2
VII	○ Back performs standard cutting	○ Front performs standard cutting	○	○

1. LFV machining cannot be performed with the Y axis.
2. Up to one pair (= two axes) can be operated simultaneously as LFV machining.
3. LFV machining using rotary tools requires the "LFV function" and "Rotary tool per rotation feedrate" options.

Machine specification

Item	L12-VII (L12-1M7)
Maximum machining diameter (D)	12mm / 16mm option
Maximum machining length (L)	GB: 135mm/1chuck GBL:30mm
Spindle through-hole diameter	ø20mm
Main spindle speed	GB:Max.15,000min-1
	GBL:Max.12,000min^{-1}
Max. chuck diameter of the back spindle	ø12mm
Max. protrusion length	80mm
Max. protrusion length of the back	
spindle workpiece	30mm
Back spindle speed	Max.10,000min^{-1}
Gang rotary tool	
Spindle speed	Max.10,000min^{-1}
Back tool post rotary tool Option	
Spindle speed	Max.9,000min-1
Number of tools to be mounted	27
Gang turning tool	6
Gang rotary tool	4 - 9
Gang drilling tool	Front 4, Back 4
Back tool post	4
Tool size	
Tool	10mm
Sleeve	ø19.05mm
Main spindle collet chuck	FC096-M
Guide bushing	WFG541-M
Back spindle collet chuck	FC096-M-K
Rapid feed rate (all axes)	35m/min
Motors	
Spindle drive	2.2/3.7kW
Gang tool post rotary tool drive	0.75kW
Back spindle drive	0.4/0.75kW
Back tool post rotary tool drive Option	0.5kW
Coolant oil	0.25kW
Centre height	1,000mm
Rated power consumption	6.1kVA
Full-load current	22A
Main breaker capacity	30A
Air pressure and air flow rate	
for pneumatic devices	0.5MPa, 60NL (Max.190NL)
Weight	1,700kg
Machine main unit dimensions	W1760 x D280 x H1610mm

*Front rotary tool drive unit is optional

Standard accessories	
Main spindle chucking unit	
Air-driven knock-out device for back machining	
Back spindle chucking unit	Machine relocation detector
Gang rotary tool driving unit	Door lock
Coolant device (with level detector)	Workpiece separator
Lubricating oil supply unit (with level detector)	

Special accessories	
Rotary guide bushing unit	
Motor-driven knock-out device for back machining	
Cut-off tool breakage detector	Workpiece conveyor
Knock-out jig for through-hole workpiece	
Chip conveyor	Scratch-free part of product chute
Medium-pressure coolant device	Workpiece separator (for front face)
Signal lamp	Coolant flow rate detector
3-colour signal tower	

Standard NC functions	
NC unit dedicated to the L12	
Constant surface speed control function	
8.4 inch colour liquid crystal display (LCD)	
Automatic power-off function	
Program storage capacity : 40m (approx.16KB)	
Main spindle indexing at 1° intervals	
Tool offset pairs : 40	Nose radius compensation
Product counter indication (up to 8 digits)	
Chamfering, corner R	Operating time display function
On-machine program check function	
Spindle speed change detector	

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

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