

CITIZEN

Cincom

L12-1M7

Sliding Headstock Type CNC Automatic Lathe



LASER  
CUTTING



# 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<sup>-1</sup> 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<sup>-1</sup>. 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

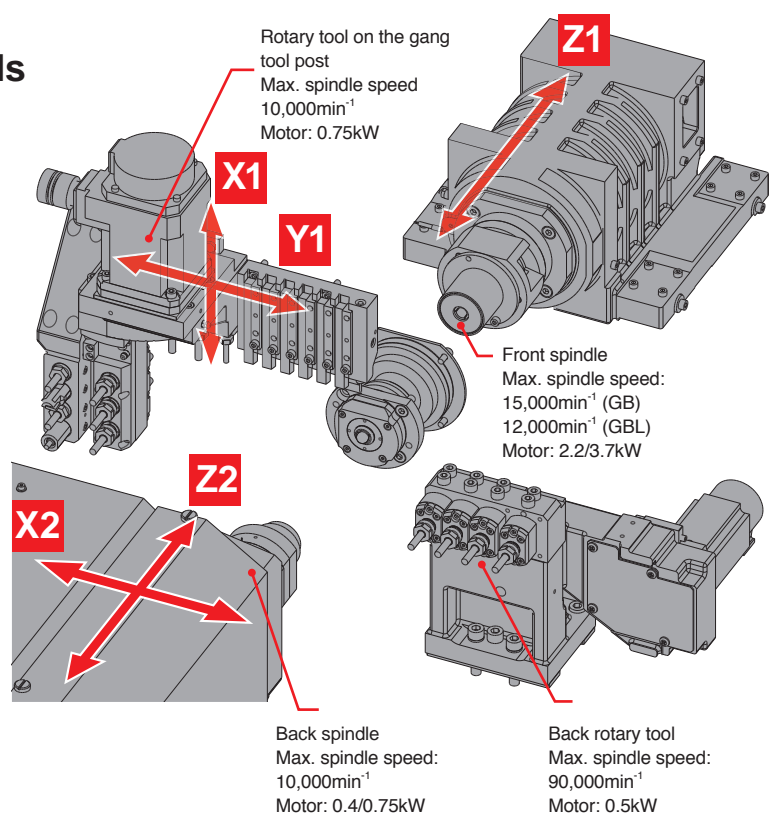
### Comprehensive tooling

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.

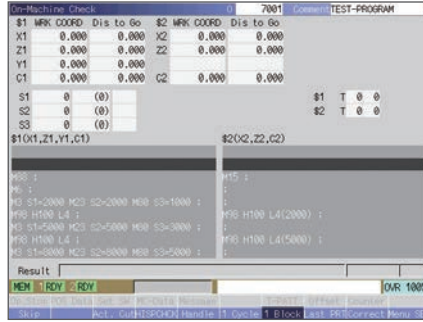


# Intuitive screen display is easy to use and read

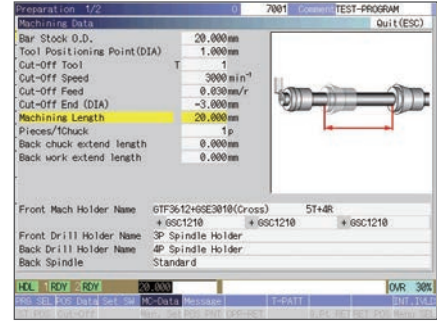
Screen designed from the operator's perspective and comfortable to use



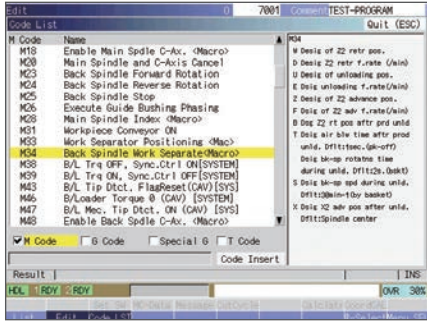
**Equipped with high-speed NC**  
The machine is equipped with the latest NC model to drastically reduce the start-up and screen switching time compared to conventional machines with advanced functions. This feature provides stress-free operation environment.



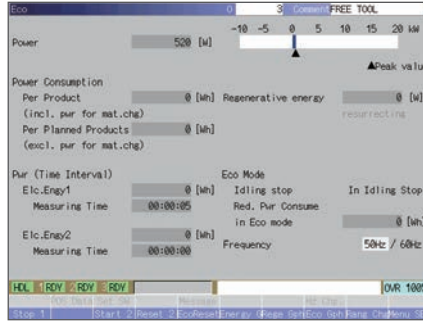
**On-machine program check function**  
The program can be run round using the handwheel giving enhanced user confidence. The program can run in forward or reverse directions and can be paused to edit before restarting.



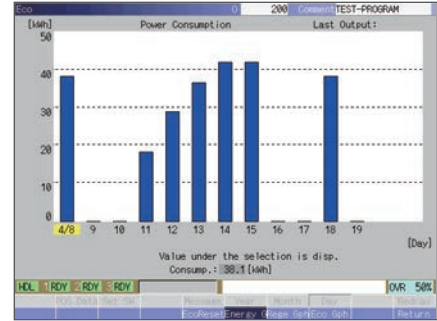
**Display of easily understood illustrations**  
In response to the selection of an item, the corresponding illustration is displayed on the screen so that the operator can easily recognise the meaning of the selected item. (The screen shown above displays the machining data).



**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.

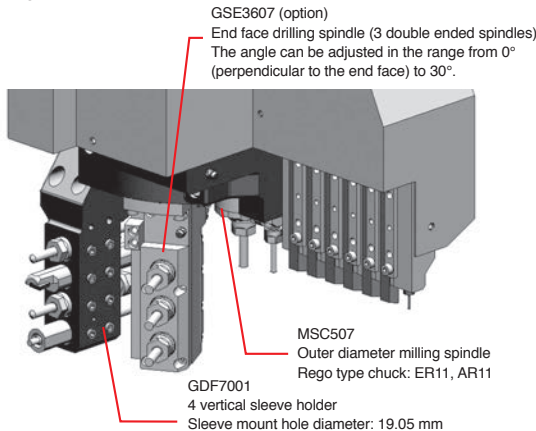


**Eco Screen**  
The machine's power consumption can be shown in the form of an easy-to-understand graph.

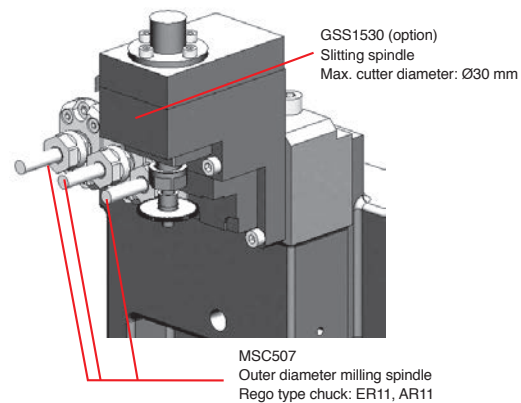
## Comprehensive tooling

Gang tool post

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.



Back tool post



## LFV



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	Front side LFV	Back side LFV	LFV mode 1	LFV mode 2	LFV mode 3
VII	X1, Z1	X2, Z2	✓	✓	✓

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.

\* LFV is a registered trademark of Citizen Watch Co., Japan.

# Machine Specification

Item	L12-IM7
Max. machining diameter (D)	12 mm Dia. (16 mm Dia. <sup>Op</sup> )
Max. machining length (L)	GB: 135mm/1 chucking GBL: 30mm
Spindle through-hole diameter	20mm Dia.
Main spindle speed	GB: Max. 15,000min <sup>-1</sup> GBL: Max. 12,000min <sup>-1</sup>
Max. chuck diameter of the back spindle	12mm Dia.
Max. protrusion length	80mm
Max. protrusion length of the back spindle workpiece	30mm
Back spindle speed	Max. 10,000 min <sup>-1</sup>
Gang rotary tool	
Spindle speed	Max. 10,000 min <sup>-1</sup>
Back tool post rotary tool (Op.)	
Spindle speed	Max. 9,000 min <sup>-1</sup>
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	19.05mm Dia.
Main spindle collet chuck	FC096-M
Guide bushing	WFG54F-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 (Op.)	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
Work light	LFV

## 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
Rigid tapping phase adjustment function	Inch command
Differential speed rotary tool function	Sub inch command

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